



THE
SOUTH-WESTERN IMMIGRATION
COMPANY

Was organized for the purpose of promoting Immigration, by reliable publications, making known the Resources, Advantages and Capabilities of the above named States. The Company has now on hand for free distribution, Books, Pamphlets and Maps, descriptive and statistical, giving detailed information of the State of Texas, Arkansas, or Western Louisiana, which will be sent, postage prepaid, to all persons applying to

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A PAPER

ON THE

Resources and Capabilities

OF

TEXAS,

READ BY

COL. WILLIAM W. LANG,

BEFORE THE

FARMER'S CLUB OF THE AMERICAN INSTITUTE, COOPER UNION,

New York, March 8th, 1881.

W. D. LAMBERT, PRESIDENT.

B. H. MARTIN SECRETARY.

EXTRACT FROM THE MINUTES.

A vote of thanks was unanimously tendered Col. Lang and his valuable paper on the Capabilities of Texas, and he was requested to deposit in the Archives of the Institute and for publication.'

WHICH IS APPENDED A BRIEF SUMMARY

OF THE

of the State as a Field for Immigration.



A P A P E R

READ BY COL. LANG, OF TEXAS,

BEFORE THE

Farmers' Club, Cooper Union, New York City.

IN response to your courteous invitation, Mr. President, Ladies and Gentlemen, I am here to say a few words with regard to the natural resources and capabilities of Texas. It affords me no little pleasure, to stand in this presence—before the oldest and most influential of American agricultural societies. A society which is a part of that larger and more catholic organization for the promotion of all learning, art and science—the American Institute. An institute which numbers among its Presidents the name of that pure-minded, large-hearted, sterling journalist and philanthropist, Horace Greeley

Let me warn you in advance that my dealing to-day will not be with either elegant description or poetic imagery, but with hard facts and dry figures—facts and figures necessary to the comprehension of that mighty movement of population, which is now flowing southwestward.

It is difficult by the mere statement of square miles by the hundred thousand and acres by the hundred million to convey any just idea of the State which forms my theme this afternoon. It is only when we compare her with other States and nationalities that the mind rises to some appreciation of her magnitude, of her immense capabilities. and of the glorious future that awaits the development of her limitless resources.

When I tell you that Texas contains 274,356 square miles, or 175,587,840 acres, I make a very prosaic statement, which carries with it very little appreciation of the actual fact that this State of Texas is as large as six such States as New York. In acres and square miles the Empire State of the South is six times the magnitude of the Empire State of the North.

Place Maine, New Hampshire, Massachusetts, Rhode Island, Vermont, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Ohio and Illinois close together, and the territory of Texas will cover and overlap them all 6,000 square miles.

Should we divide Texas in the middle, the one-half will equal Great Britain and Ireland.

Massachusetts supports a population of 186 to the square mile; were Texas populated in the same ratio her census would be 51,030,216, which is equal to that of the whole United States.

As we look a little further we shall see that if cold, bleak, rocky Massachusetts can sustain a population of 186 to the square mile, Texas, with her genial climate, her fertile soils and varied productions can do much more.

As indicative of the rapidity with which her population is increasing I give the following:

In 1820 the population was.....	20,000
“ 1830 “ “ “	35,000
“ 1840 “ “ “	60,000
“ 1850 “ “ “	212,592
“ 1860 “ “ “	601,039
“ 1870 “ “ “	818,579
“ 1880 “ “ “	1,592,574

Texas contains about 9 degrees of longitude and 8 degrees of latitude, but her peculiar surface configuration gives her a much more varied power of production. All the productions of the Temperate Zone, and many of the Torrid, flourish in Texas—cotton, all the cereals and grasses, rice, sugar, tobacco, oranges, bananas, olives, guava. Texas produces, with almost equal ease, all the grains and meats that support life—the cotton and wool which clothe it—the fruits that, like those of Eden, are pleasant to the taste—and the tea and the silk, which are its luxuries.

In 1850 the production of wheat was less than 50,000 bushels, and he who should have predicted its successful culture, in any save the counties of the extreme North, would have been regarded as a wild visionary. Yet, in 1878 the wheat crop was 4,000,000 bushels, and its production is now only limited by market facilities. It ripens a month earlier than the wheat of more Northern States. In Centennial Year the first sack of Texas flour reached Galveston May 18th. It was sold at auction for a handsome sum and sent to the Emperor of Brazil; while the price bought many sacks for the orphans in the Asylum.

Texas wheat weighs from 62 to 68 pounds the measured bushel, and flour made from it passes the tropics without danger of fermentation or souring. The balance of our trade in favor of Brazil is about thirty-five millions. Every dollar of which might be saved by increasing the production of Texas wheat and the exportation of Texas flour to pay for Rio coffee. A careful estimate shows that Texas can produce sixty-four millions of bushels, or one-eighth of the entire wheat crop of the United States, without interfering with her other crops.

The total acreage of the nine principal crops of the United States—corn, wheat, oats, barley, rye, buckwheat, hay, potatoes and cotton—is 143,178,393 acres. Texas could produce all these and have a surplus of 32,309,447 acres for other purposes. She could not only contain all the population of the United States, but she could raise all the principal crops for home consumption and foreign export which they produce.

This is what Texas might do. Let us see what it is that she does do.

Returns from sixty-eight shipping points give the following aggregate results of Texas produce. While these figures do not reach the entire production, they indicate its magnitude.

Cot on, 951,093 bales.....	Value, \$38,043,720
Cattle, 502,190 head.....	8,241,903
Horses, 37,860	473,250
Wool, 14,568,920 pounds.....	2,913,784
Hides, 28,104,065.....	2,810,406
Lumber and s i gles.....	1,349,691
Wheat, 2,500,000 bushels.....	2,375,000
Cotton s ed and oil cake.....	506,063
Suga and molasses.....	433,960
Miscellaneous products.....	672,564

\$57,829,141

These figures are for 1878; none later are available.

I think the State can rival Louisiana in the production of sugar—South Carolina in rice, and can produce as many oranges as Florida, as much tobacco as Virginia and as much hemp as Kentucky or Missouri.

We produced in 1878, 951,093 bales of *Cotton* valued at \$38,043,720. The world consumes about 12,000,000 bales annually, which Texas could grow on 19,000 square miles, or if Texas were to turn her attention to it, she could grow as much cotton as fourteen worlds like this consume.

She can produce six million bales, which is half the world's consumption without interfering with her other crops.

The *cattle* interest ranks next after cotton. The Commissioner of Agriculture reports the number of cattle in Texas at 4,464,000 with a money value of 39,640,320. The number of cattle driven north over the trail was 257,431, which estimated at \$13 each would have a money value of \$3,346,603. The number of cattle shipped by rail was 244,765 head; these are valued at \$20 each or \$4,885,300, making the total number of cattle sold 502,176, with a money value of \$8,241,903.

Illinois is the only State which leads Texas in the number of *Horses*. Texas has 963,900 horses valued at \$21,331,107. During 1878, 37,860 were driven north, these are valued at \$12.50, or a total of \$473,250. It will be seen that Texas horses do not command so high a price as the blooded stock which makes fast time in the Park, yet these same mustangs are not without many good qualities. They are generally half breeds of the pure mustang or wild horse, which itself came from gentle stock, having been introduced by the Spaniards into Mexico, and turned loose to return to a state of nature. They are of Audalusan blood, which was more or less Arabic. Nothing can equal their power of endurance, and although they are small, a good mustang will carry his rider fifty miles every day for a week, and require no better fare than he can gather when staked out at night with a forty foot lariat. The Broncho stallions, which were exhibited in the circus some few years ago attracting great attention by their beautiful forms and surprising intelligence, were fine mustangs. Where they came from I know not, but all Texans who saw them recognized

the mustang in every form and feature. The mustang has a tendency to color—parti-colored specimens are found in every drove; with us they are called calico or paint ponies. A few years since a northern lady set the fashion of driving these fancy-colored ponies to her park phaeton. An enterprising Yankee went to Western Texas, gathered up a drove of select specimens at a cost of about \$25 each, brought them north, trimmed, trained and matched them, when they readily sold at from \$500 to \$800 the pair. Nothing but limited demand prevents such business from being very profitable. Texas is inferior to no country on earth for the splendid rearing and breeding of horses, and there is none in which horses are more free from disease. The high rolling lands and hard surface gives cup to the hoof and rigidity to the muscles.

With equal breed she can produce specimens that will rival the finest Arabian blood.

In 1860 Texas contained only 753,365 sheep; ten years latter these had decreased to 714,351; yet in 1879 she had advanced to the rank of the second wool-growing State, and had 5,148,400 sheep valued at \$9,730,476. California which alone leads her has 7,646,800 sheep. In 1879 her wool clip was 14,568,920 pounds, valued at \$2,913,784.

Notwithstanding the immense number of *Cattle* sold on the hoof, the hides of those slaughtered amount to 28,104,065 pounds, with a money value of \$2,810,406. I may mention incidentally that all Texas abounds with tanning materials, and every one of these hides might be profitably made into leather. There are a number of tanneries in various portions of the State, all of which make excellent leather. The confederacy established tanneries in Texas, and a large portion of their army was supplied from them. In the last report of the Commissioner of Agriculture you will see an engraving and description of the *Canaigre*, a plant of Texas, which has been long used for tanning skins, both by white men and Indians. The root contains twenty-three per cent. of tannic acid. Our live Oak and mesquite are very rich in the tanning principle, and besides these forest trees we have an abundance of sumac.

"We claim that the most extensive and valuable pine, cypress, and live-oak forest now remaining uncut in North America is to be found in Eastern Texas and Western Louisiana. Its value consists in its large yield per acre, the magnificent proportions of the trees, the quality of the timber, and its accessibility to the ever increasing markets on the wide prairies, stretching hundreds of miles to the westward, and to the Gulf ports for shipment to the markets of the world. The yellow-pine lands of Southern Mississippi, Alabama, Florida and Georgia have been drawn upon heavily to supply the markets of the Eastern States and the ship-yards of England and Scotland for many years past; and the few tracts of valuable timber now remaining uncultured are generally far removed from transportation advantages, and command a large price.

The yellow-pine of the South is increasing in demand, and becoming more valuable each succeeding year, for the further reason that the white-pine forests of the Northern States and Canada are fast becoming exhausted.

The extent of the pine territory in the Northern States and Canada has been largely over-estimated, and its thin belts have been pierced through and through at many points by our brawny lumbermen in the different States. And the Canadian statesmen, who for many years talked of their unbroken forests of pine, reaching away back for hundreds of miles towards Hudson's Bay and the Polar Sea, have within the past year seen almost the last of their profitable "lumber limits" or blocks sold out. The choppers have reached the line of the scrubby white birch and balsam; and, with their axes upon their shoulders, they have been obliged to turn back to find new fields to conquer. Where will they go now? We will tell them: Come with us to Texas, and we will show you, in the eastern portion of our State, a little tract of primeval forest not yet culled out, about the size of the State of New York.

The trees are sound and thrifty, and rise often to the altitude of 150 and 175 feet; and often without a single crook or limb on the first 100 feet. The sap does not average more than $1\frac{1}{4}$ inches, which is a great advantage over the pine of other districts.

In Southeastern Texas there are 14 counties, aggregating an area of 11,493 square miles. This area is divided as follows: Coast prairies, 2520 square miles; miscellaneous timber, embracing white, overcup, spanish red and black oak, beech, maple, elm, ash of three varieties, magnolia, black walnut, red cedar, black, yellow and white cypress, gum and various species of bay, an area of 3974 square miles; short leaf and hammock pine an area of 983 square miles; long leaf yellow pine, 4466 square miles.

This tree is the true turpentine producing pine, and in the course of time a large proportion of the *naval stores* of the world will be drawn from Eastern Texas. The annual production of lumber is estimated at 160 million feet with a money value of \$1,349,691.

I have said nothing of the other forest trees of Texas. We have oak, walnut, hickory, pecan, mulberry, bois de arc, which is unequalled for wagon and carriage building, the magnolia, and many others. No man, who has not seen the oleander and magnolias of Texas in full bloom, can appreciate the height of grandeur to which floriculture can rise. The magnolia growing Heavenward near to a hundred feet produces thousands of flowers, each of which rivals in beauty the solitary blossom of the *Victoria Regina*. While there is nothing so gorgeous as the oleander, not the sickly shrub of your Northern conservatories, but the tall growing tree, all covered with blossoms of sunset hue.

Mrs. Mary Holly, an accomplished Kentucky lady, who visited and wrote of Texas in 1837, when it was almost a wilderness, thus describes a Texas prairie:

"It is impossible to imagine the beauty of a Texas prairie when in the vernal season; its rich luxuriant herbage, adorned with many thousand flowers, of every size and hue, seems to realize the vision of a terrestrial paradise. The delicate, gay and gaudy are intermingled in delightful confusion, and these fanciful bouquets of fairy nature form tenfold charms when associated with the verdant carpet of grass which modestly mantles around.

"One feels that Omnipotence had consecrated in the bosom of nature and under Heaven's wide canopy, a glorious temple in which to receive the praise and adoration of the grateful beholder, and cold indeed must be the soul from which no homage could here be elicited. Methinks the veriest infidel would have been constrained to bow and worship."

Texas prairies have contributed the *Verbena* to the store of floral beauties which adorn the gardens of the world. Here is its natural home.

Our statistics of *Sugar* are not so satisfactory as we could desire, because no figures have been collated since 1878, which was a very unfortunate year, the late rains having almost ruined the crops. For this, however, we have accurate figures—5,664 hogsheds of sugar, 12,244 barrels of molasses of money value \$433,960. Our sugar lands are equal in extent and productiveness to those of Louisiana.

At the last published reports there were six *Cotton Seed Oil* mills in the State. It is believed that several others have been since constructed. The products of those six were valued at \$506,063. It is but a few years since cotton seed had any market value. It was thrown away as waste. There is ample and profitable employment for twenty mills.

Another source of large profit which is awaiting development is the *pecan*. The gathering of this delicious nut being usually done by boys, it may be denominated a minor industry, yet it is an amazingly profitable one. The nut always commands a ready sale, the demand being greater than the supply. There is many an acre of land to be bought for a dollar which if planted with pecans would in ten years bring a hundred dollars. Pecans are purchased by the storekeepers at from \$1.50 to \$2.00 per bushel. There are no figures showing the amount of this industry, but that it is considerable is evidenced by the fact that San Antonio ships a half a million pounds of this favorite nut, and hundreds of thousands of bushels rot on the ground or are eaten by the hogs.

One of the popular delusions regarding Texas is that no apples grow there—that it is not a fruit-growing country. This is a great error. Nearly all the fruits of both the Torrid and Temperate Zones flourish abundantly. Apples, pears, peaches, grapes, the berries, the banana, the orange and the olive all do well. Of apples, Texas exhibits specimens fine as any. Of Summer apples, we have in perfection the Red Astrachan, Red

June, Julian, Summer Queen, Early Harvest, and Duchess of Oldenburg. Our Autumn apples are the Carolina Greening, Taunton, Topp's Favorite, Buncomb and Carter's Blue. For Winter use, the Romanite, Yates, Stevenson's Winter, Pryor's Red, Maverick (one of our own children), Ben Davis, Canon Pearmain and Hackett's Sweet.

Peaches are remarkably healthy in Texas and are productive. Of these, the leading profitable kinds for market, in the order of ripening, from May 25, forward to November, are—Alexander, Wilder, Hale's Early, Yellow St. John, Harrison's Early, Mountain Rose, Amelia, large Early York, Early Crawford, Reeve's Favorite, Thurber, Oldmixon, Free and Cling, Crawford's Late, Stump the World, Columbia, Steadley, Picquet's Late, Nelson Cling, Salway and Lady Parham.

Texas is truly the paradise of the grape. With the exception of a few varieties predisposed to rot, all kinds have gone beyond our expectations. Even the foreign varieties, Golden Chasselas, and several others of that class, have borne fine fruit for two or three years in open air. But the Champion, Delaware, Martha, Elvira, Goethe, Brighton, Black Eagle, Wilder, Salem and Triumph have all done finely. Ives and Concord produce enormous crops and sell cheaply—from three to ten cents a pound, while the better grapes bring often as high as twenty-five to forty cents. The Champion, on account of its great earliness, in Northern Texas, twenty-five cents a pound.

One grape—the Triumph—deserves more than a passing notice. It has now grown luxuriantly six years, bearing heavy crops of the largest of bunches—some weighing a pound and a half—the berries, maturing perfectly, attaining the excellence of the Golden Chasselas, which it much resembles, except being much larger in bunch. It astonishes all who see it, and sells at fancy prices, even when the market is glutted with common kinds. Here we have the excellence of the foreign with the vigor of the native.

On Galveston Island, Mr. Stringfellow has grown grapes that remind one of the miraculous pictures seen in old family Bibles, where Caleb and Joshua return from "spying out the land," swinging between them on a pole a bunch of grapes as large as a cask of wine.

Strawberries are perfectly successful. Wilson, Charles Downing, Sharpless, Miner's Prolific, Crescent, Cumberland and Captain Jack, have proven successful.

COAL.

The presence of coal in the various localities, and of more or less valuable quality, has been long known, but in the absence of railroads in the districts where the better qualities have been found, these deposits, their extent and definite value, are yet unknown from want of transportation that would render mining profitable. Quite recently, on the lines of the Texas & Pacific and Central Railroads, coal of excellent quality has been

found, and supplies in part the fuel for those roads. At a great many points in nearly every section of the State, and upon the banks of nearly every large stream, coal crops out, and is used by country blacksmiths in their forges, and at some points for fuel. On the Trinity, Brazos, Colorado, Guadalupe and Rio Grande and their tributaries, croppings of anthracite and tertiary coal of the cannel variety are found. From the lower Rio Grande, where large beds are believed to exist, it is found at intervals all the way to the northeastern corner of the State, and it is supposed forms a continuous deposit the whole distance. It is highly probable that in the vicinity of the iron fields of Rusk, where the State proposes to develop the iron ores, found in such great abundance, the coal already found will ultimately be proven valuable in the furnace for making iron. But as a thoroughly reliable scientific research has not been made by the State, the value of our coal beds may be merely suppositious.

The Texas Trunk Railway passes through a coal field 200 miles long. The American Almanac estimates the Texas coal fields at 20,000 square miles. Only three States possessing a larger area.

There is an abundant supply of copper in Archer, Wichita, Wilbarger, Baylor, Haskell, Stonewall and other counties. It is nearly a pure sulphate, yielding 72.45 pure metal.

It is found on the hillsides near the surface. Four persons took out 6,000 pounds, yielding 76 per cent. of copper in ten hours.

Lead and Silver are very abundant in the western portion of the State. In some localities the yield has been 20 ounces of pure silver to the ton.

Salt is manufactured on the Texas & Pacific Railroad, near Mineola; near the crossing of the Trinity River by the International Railroad, in Llano County, and various other points, from saline springs and wells. Also in southwestern Texas large salt lakes are found, as well as in El Paso County, from which very large quantities of salt are taken, the manufacture being by evaporation produced by sunheat. The most important of these, and supposed to be inexhaustible, are the El Paso salt lakes. A large section of country in Texas, and of the Mexican State of Chihuahua, derive salt for all purposes from these lakes. It will be remembered that a few years since the possession of these salines caused a disturbance between the Mexicans and Americans, which was for a while dignified by the title of an International dispute.

The production of salt in these lakes by the deposit from evaporation is constant and rapid in this dry region, and in quantities which must be very remunerative, when the railways being extended through that country are completed.

Iron abounds in the mountainous districts of the upper Colorado and tributaries in Burnet, San Saba, Llano, Lampassas and Mason counties, and is less abundant in various localities in other western counties. It is also

abundant in eastern Texas, in Bowie, Cass, Marion, Harrison, Rusk, Cherokee and other counties. In Marion and Cass counties iron works have been successfully established, and limited experiments made in other eastern counties at a time, however, when transportation was so costly that the ventures were not successful. The Kellyville iron works, in operation some fifteen years, have been profitable, and latterly are being enlarged and will probably at no distant time prove the source of immense wealth and the rapid development of that section of country. At Rusk, in Cherokee County, immense deposits of iron (hematite and limonite) are found, and the State, with the intention of developing and utilizing this great source of wealth, has established the east Texas penitentiary at that point.

The cost of producing a ton of iron at the Kelly works is estimated at \$7.06. Gypsum is found in every portion of the State. A quarter million barrels could be shipped north every year if there was sufficient capital to develop the industry.

At the base of the mountains, which cross Texas from the southwest to northeast, there is a series of springs, beginning in Bell county, of magnificent character, extending, at intervals, to San Antonio, giving rise to the Lampasas, Salado San Marcos, San Antonio, San Pedro, Comal, Guadalupe and other rivers, which afford an abundance of water power. At the head of some of them, as the San Marcos, the spring gushes from the rock and at once forms a river large enough to float a steamboat. There is scarcely one of these streams which does not furnish power enough to turn all the spindles of Lowell—and this power can be used every day of the year. The time will yet come when Texas will contain scores of manufacturing towns, nestling with all their busy activities, beside the most beautiful rivers of the world. The water power of the San Antonio river may be given as an example. Within a straight line distance of four miles the fall is 107.6 feet. The river itself within the same distance is more than three times that length. The volume of water is 16,149 cubic feet per minute—equivalent to 30½ horse power for each foot of fall. We are frequently asked why it is that with all this power going to waste, and an abundance of raw material on the ground, we do not establish manufactories. Our journalistic friends read us many a lecture, in which they tell us that factories will prove our salvation, and enforce the duty of establishing them with much eloquence. Readers of David Copperfield will remember Micawber's excellent reason for not engaging in the coal trade. It requires capital to establish factories, and all the capital we have is required to till our fields and move our crops.

One great advantage that would result from the establishment of cotton factories in the south would be the superior quality of the production. It is well known that the staple of cotton suffers greatly in the compress. The late Hiram Close, of Galveston, an old

machinist and careful thinker, demonstrated that Texas cotton could be spun and sent to New England much cheaper than it could be sent in the bale. It may be observed that Southern mills have no competitors in the quality of their products. That which we do manufacture is as good as the best. The 4-4 domestics produced by Southern mills are fully equal to Indian Head and Wauchettes. A mill at Waco, Texas, produces the best seamless bags, for the price, in the United States.

It may not be amiss to give briefly the reason why Southern cotton goods, which are manufactured direct from the lint as it comes from the gin, are superior to those made from the same cotton after it has been compressed. The most important factor in determining the quality of cotton is the length of the staple. When cotton is compressed, it is subjected to such immense pressure that all the fibres are interlaced and formed into a solid body. The method of preparing cotton from the bale for the carding machine, is to first pass it through the opener—by which the fibres are to a certain extent separated, and thereby many of them broken. It is then passed twice through the beater and the lap machine. Each machine having two or more beaters, which are straight bars of steel, revolving at 2,000 revolutions per minute around an axle to which they are attached, and striking the cotton which is pushed up to them over the edge of a steel plate, and so timed that the staple of cotton gets three blows in every one-sixteenth of an inch in the length of the fiber from each beater, or twelve blows on every one-sixteenth of an inch altogether. This is done to break up the leaf and beat out the dust. Of course it breaks the larger part of the fibres. The slightest examination of lint cotton as it comes from the gin, and the same as it comes from the lap machine, will show the injury that has been done. There is a machine by which the cotton is delivered direct on the lap machine roller without being touched; it is therefore at its best estate and uninjured. This is the chief reason for the superior quality of Southern cotton fabrics.

I read you an extract from the *Baltimore Sun* of last week:

"The first manufactory of translucent porcelain in the United States has recently been established in New Orleans, by Mr. Eugene Surgi, who has engaged the services of Mr. d'Estampes, formerly director of a porcelain factory at Vierzan, France. The latter had already started the business in New Orleans in a small way, but was importing his kaolin from France, being ignorant that kaolin of the requisite quality could be obtained in this country. The firm of capitalists who took over the business of Mr. d'Estampes, for the purpose of conducting it on a large scale, caused a search to be made for the proper kind of kaolin, and ultimately found it in Robertson County, Texas, on the line of the Houston & Texas Central Railroad."

But time will not permit me to even suggest the multitude of resources and industries

which are awaiting development in that Empire State, which lies beside the blue waters of the Mexican Gulf.

HEALTH.

I think there is not a State in the Union which, as a whole, compares in health with Texas. Whilst on our bottom lands, subject to overflow, we have chills, yet the great body of the State is admirably drained; a very large portion of it high rolling prairie, blessed in the summer with the gulf breeze, and in the winter by the norther which sweeps malaria clear away. So far from regarding the norther as a curse, I esteem it a blessing. Pulmonary diseases are scarcely known, and with proper safeguards, I see no reason why yellow fever should ever prevail throughout the State, although of course it may occasionally reach our coast front; but it is a notable fact that during the two years in which yellow fever raged east of the Mississippi, we had not one case in Texas.

Permit me to conclude this already too much extended paper with the suggestion that in the year 1879, with all the advantages of careful

culture, cheap labor and improved machinery, the average cash value of the principal crops per acre in New York, \$14.15, while in Texas, with all the manifold disadvantages of new homes, crude culture, and the inability to purchase machinery, the average cash value of the crops was \$14.69. These figures are from the last report of the United States Statistician. But if we should assume that Texas is no more fruitful than New York, the amount of wealth which will accrue to the nation from her development amounts to an almost incredible sum. New York produced in the year 1878, \$256,142,502 of agricultural products; the six times greater area of Texas would yield \$1-536,855,612.

Here, Mr. President, lies in a compact mass the richest natural resources and blessings which kind Heaven has vouchsafed to any portion of our great country, and, as a patriotic duty, I invoke the science and aid of your honored organization in subduing and developing them to the needs of man and the enrichment of our national wealth.

INTRODUCTION.

This pamphlet is one of several, published by the South-western Immigration Company for gratuitous distribution among those who are considering the wisdom of leaving their old homes and establishing themselves in some locality, where their opportunities for comfort and competency will be enhanced. It is manifestly proper that the reader should be informed of the Company which addresses him and the work it seeks to accomplish. Briefly, then, the South-western Immigration Company is an association composed of individuals and railway companies interested in peopling the south western portion of the United States, or, to speak more precisely, the States of Texas and Arkansas—the southern portion of Missouri, and the western portion of Louisiana. Its general office is located at Austin, Texas, with subordinate offices at New York, and other centres of population. Hon. Wm. W. Lang, late Master of the Texas State Grange, is President, and B. G. Duval, Esq., of Austin, Secretary. It has for its sole purpose the dissemination of information relative to the section of the country indicated. It neither sells land nor recommends purchases. Its object is to settle the country with an industrious, thrifty and enterprising population, which will develop its resources, make it wealthy and populous. Its publications will be truthful statements of the natural and other resources of the several localities mentioned. No means will be spared to gather accurate information and truthfully recite it. At the New York Office, 243 Broadway, which is in charge of J. N. Victor, Esq., there will be maintained an extensive and interesting display of soils, crops, timber, fruits, minerals and other productions of the section represented.

All who feel an interest in the matter of immigration are invited to address any of the officers or agents of the Company for books, maps, or such special information as they may desire, which will be furnished without charge.

And if any are in doubt as to the standing, integrity or competency of the Company, they are invited to address inquiry to the Governors of either of the States named, or other persons, whose official position will entitle their statements to belief.

SOUTH-WESTERN IMMIGRATION CO.

THE PLAN AND PURPOSE OF ITS ORGANIZATION.

The South-western Immigration Company is an organization for the purpose of advancing immigration into the south-west portion of the United States, comprising the States of Arkansas and Texas, together with so much of Missouri as lies south of the Missouri River, and of Louisiana as is west of the Mississippi. This section of country is homogeneous in its character, and held together by a common interest. It forms, so to speak, a distinct section of the country, and the prosperity of one portion of it is the prosperity of all.

The organization was the outgrowth of a conviction among certain railroad corporations that the cause of immigration (so necessary to make these great enterprises rapidly remunerative) could only be effectually subserved by united action. Previous to this time the railroads had expended large sums of money in separate efforts to encourage immigration into the sections in which they were specially interested. Enterprises of this sort, where self-interest is manifestly the motive power, are looked upon with suspicion by strangers. Hence they were not found to be effective. The people of Texas had incorporated into their constitution a provision that no money should be expended for the purpose of bringing immigrants into the State. This was not from any indifference to immigration, but because Texas is an economical debt-paying State, and it had been observed that in some States much taxation had been caused by immigration and other bureaus, all of which were forbidden, from that prudence which guards every avenue to the public treasury against extravagant expenditure. So it came about that railway enterprise undertook at its own expense what in other portions of the country has been effected at large cost to the people of the States. The following railway companies are members of the corporation known as the South-western Immigration Company: Missouri Pacific, St. Louis, Iron Mountain & Southern, International & Great Northern, Missouri, Kansas & Texas, Texas & Pacific, New Orleans & Pacific, Gulf, Colorado & Santa Fee, and Dallas & Wichita Railroads.

In announcing the formation of the Company, the President used the following authoritative language:

"The South-western Immigration Company is not a land agency. It has no interest in lands, and will acquire none. It is separate and distinct from the land departments of the railroad companies. They will conduct their land business in their own way. The means they have furnished to this company are to be used for the common good. The object of this company is to people the South-west—to fill up vast unoccupied spaces, so that the rich

stores of wealth that now lie locked in the bosom of the earth, may be made subservient to the uses of man; to increase commerce; to double transportation; to establish industries that will manufacture raw products into useful fabrics, and, in short, to put this section on the advance ground of civilization. To this end we labor. The railroads have generously placed a large sum of money at the company's disposal, to be expended in the accomplishment of this object. Their conduct in this deserves the good feeling of a grateful public, and solicits its support in a work so praiseworthy. The inauguration of this company, being a voluntary offering for the public good, I feel at liberty to call upon the people of the country for gratuitous assistance, and, therefore, urge them, in their several counties, to form immigration or agricultural societies to aid in the collection of such statistical information regarding crops, stock-raising, commerce, transportation, etc., together with such descriptive matter as will set forth the advantages of their respective counties as fit homes for immigrants. In this we want nothing but truthful statements, without exaggeration or fanciful painting. Overdrawn descriptions, reaching far beyond reality, can do no good; but, on the contrary, will disappoint the new settler who has been led hither by them, and in the end cause dissatisfaction, discontent, and hinder immigration to that section.

"When such societies are formed and properly organized, they are requested to furnish this office with name and postoffice address. Upon reporting to this office, the company will furnish blanks and formulated questions, to enable them to collect such information as may be of value in a systematic way.

"I further submit to the public the propriety of erecting a suitable building at the important railroad connections, where an immigrant's home may be kept, furnishing immigrants with shelter and reasonable comfort at a low rate, until a location or employment may be obtained."

The people recognize the fact that this work is to yield no immediate and direct return of money, but that in the development of the country and in its settlement the indirect returns will be an ample compensation for all they bestow. It is the aim of the company to furnish reliable information of the advantages of the country. It will have no trades to make with immigrants, and makes no charges against them for whatever services it will render them. All inquiries respecting country, lands, laws, etc., will be promptly answered from the most reliable sources of information at its command. Correspondence is respectfully solicited.

INTRODUCTORY STATEMENT OF THE GENERAL ADVANTAGES OF THE STATE AS A FIELD FOR IMMIGRANTS.

The State of Texas offers inducements to immigrants which cannot be surpassed in many respects, and are rarely equalled by any other country on this continent. These comprise excellence of climate, soil and water, agricultural, grazing and commercial advantages, and educational facilities; and in addition to all these, cheap lands. The settler who comes into this State now, has not necessarily to undergo the hardships of pioneer life, as was formerly the case. He can, if his inclinations point that way, still find large areas of uncultivated pasture lands in the extreme west and north-west, where his flocks and herds may roam at will, but at least one-third of the territory of the State is about as well populated as many of the States east of the Mississippi River. Mills, gins, stores, schools and churches are met with almost everywhere, and opportunities for social intercourse are at the command of even those in the most sparsely settled neighborhoods. But a glance at the accompanying map will show what an enormous extent of fertile and productive land is still open to settlement. Within a few years past, the country west of longitude 98°, was the home alone of the Indian and an occasional hardy frontiersman, who stubbornly disputed his sway. Now the area of population has pushed westward to the 100th degree of longitude, and even beyond that. But there yet remains the "Panhandle" section, having an area of about 31,000 square miles, which is much more than an average-sized State of the Union, almost entirely unoccupied, and which has been shown by recent surveys, to be in general a very rich and fertile section, well adapted to agricultural purposes. South of the "Panhandle" and west of the 100th degree of longitude, stretches a vast extent of country, suitable for sheep, horses and cattle, and, along the streams, for agricultural purposes. The mineral wealth of a great part of this sparsely settled country, from the limited examinations so far made, is believed to be very great, and to promise, in the near future, a fine field for the pioneer prospector.

The facilities for travel, and the transportation for produce and supplies over the greater part of the State, are now ample. There are at present in operation over 3,000 miles of railway, five hundred and sixty-five miles of which were completed during the year ending September 1st, 1880. And the extension of these roads in every direction, is being rapidly and energetically pushed. No country on the continent seems to present the same attractions for railroad capital that Texas does, judging from the number of new enterprises of this sort that are being inaugurated, and the rapid extension of the lines already in process of construction.

All along these lines of road, towns are springing up, and population increasing sufficient for the establishment of schools and societies; and stores, where goods are sold at no

greater advance of prices than the cost of additional freight, are found at the railway stations, and here also the farmer finds a ready market for his produce.

The farmer is invited to a country of unsurpassed fertility and health, where upon the same land he can produce the great staples, cotton, wheat, oats, rye, corn, tobacco and sugar; the grazier, to the broad prairies or rolling uplands, where cattle, sheep and horses, feed the year round on the native grasses; the artisan and mechanic, to thriving, growing towns, where his skilled labor is in demand at remunerative prices; the capitalist, to the inauguration of the many industrial and manufacturing enterprises demanded by a vigorous and growing population. In short, the immigrant who seeks "natural advantages," can scarcely go amiss for them, and must be hard indeed to please, if in our great diversity of soil, climate and production he can find no spot to suit him for the establishment of a home.

The design of this chapter, however, is merely to introduce the subject, leaving the several attractions of the State to be especially treated under appropriate headings; but it is not out of place to add here that the utmost care has been observed throughout, in the preparation of these pages, to avoid exaggeration. It must be borne in mind that this pamphlet is not the production of an individual or company interested in the sale of lands, but a publication made solely for the purpose of attracting immigration by a truthful and unbiased statement of facts. But while its object is to set forth the inducements which Texas offers to immigrants, and invite the latter to settle within her borders, those having charge of its publication, fully appreciate that, if mutual benefits are to flow from immigration, new settlers must not be attracted by representations which their future experience will not verify. Should they be deceived they may become dissatisfied, and results may follow alike injurious to themselves and to the State. For this reason it has been deemed of utmost moment that no assertion shall find a place in these pages unless it is entirely true.

And just here one word to our own people. The people of Texas cannot be too careful as to the manner in which they receive new comers. A civil word, a little politeness, or an act of kindness, costing nothing, may be the means of favorably impressing a stranger, who in turn, may be the cause of turning hundreds of immigrants in this direction. On the other hand, a short, uncivil answer and gruff manners will, in a measure, confirm the unfavorable reports given him by the enemies of Texas, and he returns or goes, disgusted, to other portions of the country and uses his influence against us. It would require an almost superhuman effort of philosophy for persons coming to a strange land where things are found so entirely different from their accus-

tomed surroundings, not to feel a natural "homesickness," and when to this is added a cold and surly reception, it is not strange that sometimes disgust supervenes; and he who might have been a good citizen and a good neighbor becomes a bitter enemy. We who are "native and to the manner born" know that there is as much hospitality and kindly feeling among the people of Texas as can possibly exist anywhere, and these suggestions are not made with the idea that immigrants coming into the State are likely to receive "a cold shoulder," but our people should see to it that such persons have extended to them not only the common courtesy due to strangers, but that hearty welcome and active sympathy and assistance that no man appreciates so much as he who finds himself "a stranger in a strange land."

LOCATION AND AREA OF TEXAS.

Texas is situated between Latitude 25° 50' and 36° 30' North, and Longitude 93° 30' and 106° 40' West; greatest length from the mouth of the Rio Grande River to the northwest corner, about 825 miles; greatest breadth, along the 32d parallel, about 840 miles. Area 274,356 square miles. It is bounded north by New Mexico (west of the 103d meridian), the Indian Territory and Arkansas, the Red River being the dividing line east of the 100th meridian; east by the Indian Territory (north of lat. 34° 30'), Arkansas and Louisiana, from the last of which it is mostly separated by the Sabine River and Lake; southeast by the Gulf of Mexico; southwest by Mexico, from which it is separated by the Rio Grande; and west by New Mexico. The map which is attached shows its form. As stated, its boundaries enclose an area of 274,356 square miles, or 175,587,840 acres. An idea of its extent may best be formed, perhaps, by comparing it with other countries; for instance, it has 34,000 square miles of area more than the Austrian empire, 62,000 more than the German empire, about 70,000 more than France, is nearly as large as Sweden and Norway together, and twice the size of Great Britain and Ireland. Coming to this side of the Atlantic the comparison is no less startling. The area of all the Eastern and Middle States, including Maryland and Delaware, is 100,000 square miles less than Texas. It is six times as large as New York, seven times as large as Ohio, four times as large as all New England. The area of Ohio, Indiana, Illinois, Wisconsin and Michigan, taken together, falls short of that of Texas by some 40,000 square miles, or another State as large as Ohio. If you cross the Mississippi you must consolidate Kansas, Nebraska, Iowa and Minnesota to equal the area of Texas.

This vast territory is cut up into 226 counties, some of which are in themselves quite equal in size to many of the States. The counties of Tom Green, Presidio and Pecos are each larger than the State of Maryland, nearly double the size of Massachusetts, and nearly three times as large as Connecticut.

The territory of Texas is, in truth, of magnificent extent, and the term "Empire State of the Southwest," sometimes used in reference to it, is not inaptly applied.

GENERAL FEATURES OF THE STATE.

Texas is a vast inclined plane, with a gradual descent from the northern and northwestern boundary to the Gulf of Mexico. The coast counties are nearly level for sixty to eighty miles inland; the surface then becomes undulating, with alternate gradual elevations and depressions, and this feature increases as we proceed toward the northwest, until it becomes hilly and finally mountainous in some of the far western counties. The highest ranges, however, do not attain a greater altitude than 5,000 feet. In the coast counties the soil and climate are especially adapted to the culture of sea-island cotton, tobacco, rice, sugar and many semi-tropical fruits and vegetables. Nearly all this level coast country, from the Sabine River on the east to the Rio Grande on the west, is prairie, only broken here and there by "motts" (isolated islands) of timber, or the bottoms of the streams. Over these vast prairies countless thousands of cattle roam and keep fat the year round on the natural pasturage.

The eastern portion of the State, or that east of the 96° of longitude and north of the 30th parallel of latitude, comprising about forty counties, is heavily timbered, and from this section are drawn nearly all the immense supplies of pine lumber required in the prairie portions of the State. The natural resources of this section are varied. In it are vast deposits of iron ore of excellent quality. Large crops of cotton, corn and other grain are grown in its valleys, and its uplands are noted for the production of fruits and vegetables. It is generally well watered by pure streams and fine springs, and everywhere wells of the best drinking water are found at moderate depths.

Central and Northern Texas, though generally a rich rolling prairie country, are by no means devoid of sufficient timber for ordinary purposes, its numerous streams being fringed with a large growth of forest trees. It is also traversed by the upper and lower "cross timbers," an extensive belt of oak, elm, and of other timber, beginning on Red River, in Crook and Montague counties, and running in a southwestern direction diagonally across the State, nearly to the Rio Grande. Western and Southwestern Texas are the great pastoral regions of the State. The surface is generally a high rolling table-land, watered by numerous creeks and small streams, but with little timber, except along the streams and on some of the hills and mountain regions of the western part, where forests of cedars, mountain juniper, oak, etc., exist.

The luxuriant growth of rich native grasses found in this section renders it pre-eminently a stock-raising country, and as such it is unexcelled by any other portion of the continent. The precious metals and other mineral deposits are known to exist in this section of the

State, and it is believed their development will be rapid and successful as the country becomes more accessible, when the railroads now in process of construction shall have been completed.

BRIEF HISTORICAL SKETCH.

TEXAS Government underwent many rapid changes before its territory became a member of this stable country. Up to the year 1821, Texas was a part of Mexico under the dominion of Spanish Viceroy. In that year Mexico renounced her allegiance to Spain and established a Regency. After one year's trial the Regency was changed to an Imperial Government. Then the Emperor was deposed, and in 1823 a Republican form of government was instituted. This only lasted one year, when it was changed for a Federal system modeled after that of the United States. This lasted ten years, and in 1833 Santa Anna established a military despotism. After three years of turbulence and bloodshed in which the Texans fought under the Federal Flag of Mexico, she declared her independence, and in 1836 Texas became an independent Republic—and in 1845 was voluntarily annexed to the United States. Her population at that time could not have exceeded 150,000. By the treaty of annexation Texas retained all her public domain. She sold that which now constitutes a part of New Mexico to the United States for ten millions of dollars. With this she paid her debt of five millions—constructed her Capitol—Deaf and Dumb, Blind and Lunatic Asylums—and endowed her public schools with the remainder.

HOW LAND TITLES ORIGINATE.

As already stated, Texas reserved by the treaty of annexation all her public domain, amounting to 268,684 square miles, or 171,967,560 acres. Thus it was that while she was the youngest of States she was the most wealthy.

From the earliest days of the Republic it has ever been the policy of Texas to use her public lands for the encouragement of immigration, the endowment of her school fund, and the building of internal improvements within the State. At one time she gave to each immigrant, the head of a family, as much as a league, and labor of land (4,605 acres); a single man, a third of a league; these were called head-rights. She also gave bounty warrants to men who joined her army, and to men who would mark out wagon-roads, or build mills, bridges, etc. After annexation she passed a law, giving as a subsidy sixteen sections for every mile of railroad built upon certain lines, and in accordance with their charters. Also for removing obstructions and thus making navigable certain rivers. She has also given large grants to the several counties, and to the deaf and dumb, the insane and the blind asylums, as also to the Colleges and the Universities. All grants of land are made by direct act of the legislature, and when coupled with conditions, as in the case of railroads, and the conditions complied with fully,

the Commissioner of the General Land Office, located at the capitol of the State, issues a land warrant which says upon its face (in substance) "that—is by virtue of this warrant entitled to 640 acres of land, to be taken from any of the unappropriated land of the State of Texas, the same to be surveyed according to law," and this land warrant, or land certificate, as it is usually called, is the foundation of all the titles in the State.

Each county has a local land office, with a surveyor, who is a bonded officer of the State. He keeps an accurate map of every survey ever made in his county, and a book in which every set of field notes (metes and bounds) are duly recorded. A party holding a land warrant and wishing to locate the same, would apply to one of these county surveyors, and by examining his map can soon tell how much, if any, vacant land still remains in that county; if there was none, or if it did not suit, he would pass from county to county, until a satisfactory tract could be had, and when had, he would turn over his warrant to the surveyor, who would file it in his book, and survey off the quantity it called for. After the survey is made, and the field notes recorded, they are sent together with the warrant, to the General Land Office, and a patent is issued, signed by the Commissioner, and by the Governor of the State, and this patent forms the complete title.

Of late years the Legislature in granting this land subsidy to railroads and for the improvement of rivers, made it obligatory upon them or their assigns to take their lands in alternate sections, surveying one for themselves and one for the State, and plotting both upon the county map. The alternate section, thus surveyed for the State immediately becomes "School Land" and is for sale at a minimum price of one dollar per acre; but where a section contains water or fronts on the same, the minimum price is two dollars per acre.

No sale can be made of less than 160 acres, unless it be a fractional section of less than that amount. No one person, firm or corporation can purchase more than one section of arable land or three sections of pasture land within five miles of the geographical center of a county or upon a water front; beyond such limits a sale may be made to one purchaser of not more than seven sections, if the same is classed as grazing land. When application is made for less than one section, no fraction of less than 160 acres in a square form shall be left, and no fractional section of less than 320 acres shall be divided.

Where purchasers desire it they need only pay down one twentieth (1-20) part, and the balance in annual payments, for twenty years, with eight per cent. interest, but they have the privilege of paying all cash down if they prefer.

To purchase from the school land he applies to the county surveyor, who, upon his application, will survey him off 160 acres or the amount applied for, receive the first payment, and take his note for the balance; and, as soon as all the payments and interest have been duly paid, a patent will be issued by the State.

"Homesteads may be acquired in any portion of the State where vacant land can be found. Each head of a family is entitled to 160 acres, and each single person eighteen years of age to eighty acres, by settling upon, occupying and improving the same for three consecutive years. The applicant must, within thirty days after settling upon the land, file with the county surveyor a written designation of the land he desires to secure, and must have it surveyed within twelve months from date of such application, and the field notes and application forwarded to the General Land Office. When the three years have expired from date of original settlement, proof that the applicant and his assignee, if he has sold, have resided upon and improved the same as required by law, must be filed in the General Land Office. This must be sworn to by the settler and two disinterested witnesses before some officer authorized to administer oaths. Patent will then issue to the original settler or his assignee if proper transfers are filed."

LAWS.

The laws of the State are similar to those of the most advanced States of the Union. They give ample and full protection to life and property, and are rigidly enforced. The largest liberty of speech and freedom of thought is encouraged and guaranteed; no proscriptions in religion or politics are tolerated. Every right and privilege is closely guarded in the laws. All forms of religious worship are practiced, and every shade of politics is entertained among the people. The Democratic party is the dominant political sentiment of the State. The next largest political division is the Republican party. In many localities of the State it is in the majority, and the offices are filled by Republicans. The Legislature is composed of Democrats, Republicans, Greenbackers (or Nationals) and Independents. The privilege of the ballot is as free to the one as to the other citizen, and all are protected by law in its free and untrammelled exercise.

Article XII. and Section 15 of the State Constitution reads as follows:

"The Legislature shall have power, and it shall be their duty, to protect by law, from forced sale, a certain portion of the property of all heads of families. The homestead of a family, not to exceed two hundred acres of land (not included in a city, town or village), or any city, town or village lot, or lots, not to exceed five thousand dollars in value, at the time of their designation as a homestead, and without reference to the value of any improvements thereon, shall not be subject to forced sale for debts, except they be for the purchase thereof, for the taxes thereon, or for labor and materials expended thereon; *nor shall the owner, if a married man, be at liberty to alienate the same, unless by the consent of the wife, and in such manner as may be prescribed by law.*"

It frequently happens that necessity compels one to incur debt, and no matter how well such result may be guarded against inability to pay when the debt matures will sometimes be the condition of the most pru-

dent and honest. Sickness, accident to person or property, or other circumstances wholly beyond the control of the individual may bring this about. Under such circumstances it is gratifying to know that the creditor cannot take from his unfortunate debtor the home, nor its furniture and conveniences, nor the food, stock, implements, tools, etc., by means of which the debtor may recover from the effect of his losses. But far greater than this is the consolation of knowing that even should death overtake one, while laboring under such embarrassment, the bereaved widow and children will still be secure in the possession of their home and its comforts and the means to gain a livelihood.

PROVISIONS IN THE CONSTITUTION OF THE STATE OF TEXAS.

1. The legal rate of interest is fixed at eight per cent., but may be made twelve per cent. by special contract.

2. All property of the wife, owned or claimed by her before marriage, as well as that acquired afterward by gift, devise, or descent, shall be her separate property.

3. The wife's property is exempt from the husband's debts, and all their earnings during marriage are partnership effects.

4. Provision is made that the qualified voters of any county, justice's precinct, town or city, by a majority vote, may determine whether the sale of intoxicating liquor shall be prohibited within the prescribed limits.

5. Certain portions of personal property of all persons are protected from forced sale.

TAXES AND FINANCES.

The taxable values of the State are \$318,970,736, against which there is levied an annual assessment of forty cents on the one hundred dollars for State, and twenty cents for county revenue. The bonded debt of the State is \$5,029,920, about three million of which is held by the State for account of special funds. There is also a surplus balance in the treasury of near \$600,000. The financial condition of the State and counties is upon a good basis, and taxation is comparatively light. Not more than one-fourth of the general revenue is set apart by the Constitution for the purpose of sustaining a system of public education. But few of the counties have a bonded debt, and but few have subsidized railroads. Most of the counties are free of debt, and reducing the burden of taxation from year to year, as the taxable values increase. The people are industrious and progressive. Every industrious, frugal and prudent man who has settled within the State, and who has followed closely his occupation, and refrained from speculation, has improved his condition, and thousands have grown rich or have become independent livers. So abundant are the elements of wealth that all prudent and industrious people succeed.

EDUCATION.

Great as are the manifold attractions offered by the climate, the soil, and other physical advantages of Texas, none of them equal the

princely provision which the fathers of the Republic made for the education of the millions of youth who will, in the near future, be numbered among her population. The far sighted statesmanship of those who laid the foundation of the "Lone Star" Republic, provided for the education of generations yet unborn a more generous revenue than is enjoyed by the schools of any State in the American Union. Nay, more than this; as we read the page on which these princely revenues are dedicated to education, we shall see that neither Oxford nor Cambridge have such royal endowments as the sages of Texas gave to the University of Texas.

There is a permanent School Fund of \$3,500,000. That of Massachusetts is only two-thirds as large.

These lands have been set apart for educational purposes:

For a university.....	1,221,400 acres.
County school domain.....	2,833,920 "
General school domain.....	50,000 000 "
Total.....	54,055,320 "

So much for the permanent support of the schools. Let us see what provision is made for their present maintenance, besides the interest on the \$3,500,000 permanent fund. This is yielding an annual income of more than \$200,000, and is increasing from land sales \$100,000 a year.

The constitution sets apart not more than one-fourth the general revenue of the State, and \$1 poll tax for the support of common schools. In the year 1880 this amounted to \$919,880. Besides this amount, there is the interest on the county school fund, \$550,020, being the amount realized and invested by those counties which have sold their lands in whole or in part. In some cities an additional local tax is levied for the support of schools.

So much for the provisions for schools. What is being done with the money that is available now?

Of course, in sparsely settled communities the inauguration of schools is difficult. And it is almost impossible to apply any strict system. There must be more or less flexibility. Free schools are maintained in 159 counties. Of these, reports have been received from only 132 counties; yet in these counties there were 4,523 schools. These were attended by 133,667 white children, and by 45,465 colored children. In them were employed 3,258 white teachers, and 991 colored teachers, being a total of 4,249 teachers.

The State has also established two normal schools, one of which is for the education of colored teachers. At these schools the students are both educated and boarded without charge. From these a supply of trained teachers is constantly going to all portions of the State. An agricultural college has been located near Bryan. The State appropriating \$200,000 and erecting elegant buildings, in every manner adapted to the uses of a first-class college. A full corps of professors has been employed and all the necessary paraphernalia purchased. Besides all this, a bill is now before the Legislature, and has been favorably

reported by the committee, to endow the college with one million acres of land. Thus generously does Texas provide for the education of all classes of her youth; where is there another State that has done so liberally?

The people of Texas are eminently a religious people. There is no State in the Union where church-going facilities are more highly prized, or where a larger proportion of the citizens are members of church organizations. About a half million people are the recognized members of a religious denomination:

Baptists.....	125,000
Methodist Episcopal.....	100,000
Methodist Protestant.....	2,600
Presbyterians.....	9,000
Cumberland Presbyterians.....	4,000
Disciples of Christ.....	7,000
Episcopalians.....	4,000
Roman Catholics.....	150,000
	501,000

Surely a community in which one-third of the population professes direct church affiliations cannot be very lawless.

I have attempted to concisely delineate the capabilities and possibilities of this great State. The enormous productive capacities of the country and the energies of the people, aided by the railway system, will, in the near future, make Texas the richest and grandest State of the American Union.

IS TEXAS A LAND OF LAWLESSNESS?

Texas is often represented as a rough border country, without organized society and without the characteristics that distinguish an elevated, refined and progressive people. Irresponsible immigration agents, whose interest often depends upon the number of people they send over certain lines of railroad, delight to picture her as the home of the desperado and the abiding place of lawlessness and crime. No better evidence of their mendacity need be cited than the extraordinary progress Texas has made within the last decade. The turbulent elements of society can find no congeniality amid a live, active, working and progressive people. Idleness is said to be the fruitful mother of wickedness and crime. The industrious and progressive citizen finds no time for the commission of crime, but delights in the pleasures and victories found along the pathway of progress. While working upward he is contented and pleased with the world and himself. The avenues of crime lead from the haunts of indolence as certainly as are the ways of progress traceable to honest, unceasing toil. The rapid march of Texas, in those great industries which bring wealth, contentment and honor to a people, briefly stated, should do more than anything else to convince the thinking mind that she has been most wickedly maligned.

Her population has increased from 818,579 in 1870, to 1,654,480 in 1880, an increase of more than one hundred per cent. The principal source of this increase is from immigration, and the question might be pertinently asked here if there is anything in the atmos-

phere and climate of Texas to make these people more lawless and disorderly than in their former homes. They have come from every clime and from under every form of government. Accustomed to the stern rule of monarchy or the gentle power of republicanism, they bring with them their ancient love for well-regulated and orderly society which distinguished the countries from which they come. They have found here a government based upon the consent of the people whose laws are the formulated expression of public sentiment. An examination of the Statute Book will show that our laws are as rigid in the punishment of crime as those of any other land, and the records of the courts exhibit an almost unfeeling enforcement of the stern requirements. What, then, is there to make them more lawless than other people in other countries, or the same people in other countries? The records of history teach that a people engaged in development have but little time or opportunity for indulging either in the glitter of ostentation or the despicable pursuits of criminal pleasures. It is impossible that a people who are progressive in wealth, education, and the arts and sciences can be lawless and disorderly, nor can depravity or corruption be long tolerated among them. No State in the Union will show more rapid strides in material development and in all the improvements of civilization than Texas. Crushed in her hopes by the total abolition of her labor system, she cast off all regrets and disappointments, and with manly courage commenced anew the race of life; and now mark her onward course.

In 1870 she occupied a low position in the grade of the States according to their productions. Her farms were almost fenceless, and her farm-houses were but the rude structures of a pioneer people. Her agriculturists practised the rude methods, with the ruder appliances of the frontiersman. The log-hut has now given way to the cosy farm cottage, or the more pretentious country gentleman's seat. The farms are well fenced, and primitive modes of agriculture have developed into the improved machinery and skilled systems of cultivation practised by the educated husbandman. In 1870 the production of cotton was 350,628 bales, which product was low down on the list of the cotton-producing States. In 1880 she stands at the head of the list, producing fully one-fifth of the entire American crop. In 1870 her crop of wool amounted to only 1,251,328 lbs. In 1880 she has grown to the rank of the second wool-producing State of the Union. In beef production she stands unrivalled. Though cotton raising is a specialty in Texas, yet she is pressing close upon the heels of the great grain-growing States of the West in three of their most important cereal crops, corn, wheat and oats. The cotton crop has increased 300 per cent, and it may be safely estimated that the production of corn, wool, wheat, oats and sugar has maintained the same relative increase. This rapid growth in her great agricultural productions is not due alone to immi-

gration, but it is in part the result of the thrift and enterprise of her people upon the bosom of the most fructifying soil beneath the sun. Nor is it due to the vast extent of area. No other State of the same population can equal her in increase for the same number of years, and no other State of equal population can rival her in the production of those great staples of the soil which bring wealth to a people. Truly in agriculture she is growing great and powerful, but her progress is not confined to this department alone. Her commerce is spreading out and attracting the observation of other countries. In wool, hides, beef, and cotton her exports exceed those of any other State. Galveston is the third cotton port of the Union, and if the channel to her bays were deepened, so as to admit vessels of the heaviest tonnage, she would soon take rank with the first exporting cities of the United States. A tithe of the vast sums annually appropriated by Congress for works of trifling local importance, would give Texas a harbor such as her importance demands; but for this neglect her rich products are carried over long and expensive railway lines to find their way to the markets of the world through the ports of other States.

In 1870, the number of completed miles of railroad in the State was 711. In 1880 it was upwards of 3,000, and we can with certainty state that there will be built and equipped more miles of railway in her limits in 1881 than in any other State of the American Union. The sagacity of capital, ever on the alert to turn another penny, is pushing these railways out into the regions of the west, where the grass grows unruffled by the foot of civilized man. It knows that these rich soils and genial climate will, in the immediate future, invite the labors of the frugal farmer, and from their productiveness will come the tonnage it covets. Is it not an unwarranted assumption to suppose that this vast capital would seek investment in a country where law is disregarded and human rights are ignored? Capital is proverbially cautious, and prefers safety to large profits. Yet we are told that the people of Texas are lawless, and that crime holds "high carnival" in her borders.

The number of children attending public schools in 1870 was 61,010. In the year 1880, despite the reduction of the scholastic age from six to eighteen, to eight to fourteen, the number of children in attendance upon the public schools was 144,968. This increase points with wonderful effect to constant improvement in the system, and to the determination of the people to foster and perfect a system of public education.

The increase of church membership has kept even pace, if it has not exceeded that of the other growths of the State.

Can it be that a people who are making such rapid strides in all the arts of civilization are disorderly and brutal, and that person and property rights are unsafe?

We would not be understood as asserting that there is no crime, no diabolism in Texas.

It exists in every country and under every form of government. If there were no crime there would be no necessity of government. It does exist in Texas, and to a much greater extent than we like to see, but that it is more prevalent here than elsewhere, or that it is tolerated here to a greater degree, we most emphatically deny, and point with pride to the speedy march of our people in all that constitutes greatness and good society, as an unerring and irrefragable proof of the unfounded and often repeated charge that Texas is a land of lawlessness and crime. A thrifty, industrious and developing people are most apt to frown severely at all disturbances of peace and the order of society. The safety of the earnings of their toil depends upon a proper recognition of human rights and the laws of the government. A people making such progress as Texas shows, must be patient, laborious and law-abiding—politicians and interested immigration agents to the contrary notwithstanding.

The following is an extract from the report of the attorney-general of the State, made December 31, 1880:

"The exhibit hereto attached among other things will show that between the 30th day of November, 1879, and the first day of December, 1880, there were 3,525 indictments, charging felonies, presented in the district courts of the State, and that of the cases tried during that time, there were 906 convictions in felony cases. These indictments and convictions were as follows:

	No. Indictments Presented.	No. Convictions had.
For embezzlement.....	78	8
For murder.....	259	88
For rape.....	44	9
For perjury.....	74	5
For forgery.....	131	36
For burglary.....	204	94
For arson.....	23	5
For robbery.....	99	18
For theft.....	1,758	483
For other felonies.....	855	160
Total	3,525	906

During this same period there were filed in the district courts indictments and informations charging offenses below the grade of felony to the number of 4,945, while the convictions for misdemeanors in these courts amounted to 399. This small number of convictions is owing to the fact that most of the indictments for misdemeanors are sent to the county courts for trial.

It is evident from these reports that crime is on the decrease in the State. Take, for instance, the following comparative statement, showing the last four years, and bear in mind that the reports for 1880 include nearly all the counties, while those for the preceding years do not include a large number of them, as also the fact of the increase of our population during the time. There were presented during these years indictment for offenses, as follows:—

	1877.	1878.	1879.	1880.
For murder.....	398	549	344	259
For theft.....	2,260	2,371	2,081	1,758
For arson.....	26	24	19	23
For perjury.....	82	90	79	74
For rape.....	53	53	34	44
For robbery.....	51	49	47	99
For forgery.....	85	256	155	131
For burglary.....	175	154	183	104
Total.....	3,130	3,548	2,942	2,592

During the same four years the reports show the convictions for these offenses to have been as follows:—

	1877.	1878.	1879.	1880.
For murder.....	71	122	115	88
For theft.....	471	558	651	483
For arson.....	5	7	5	5
For perjury.....	3	1	10	5
For rape.....	11	9	16	9
For robbery.....	13	24	9	18
For forgery.....	9	17	19	36
For burglary.....	58	61	62	94
Total.....	641	799	907	738

This array of statistical facts is an unanswerable refutation of these groundless charges. Those seeking new homes to better their condition will find here a hearty welcome, where their property and persons will be as sacredly guarded as in any government of the world, and their energy and industry as liberally rewarded. No country offers a broader field for human labor, and no people appreciate more highly the benefits of good society than the people of Texas. Honesty and industry will be encouraged, and crime will receive the condemnation of an indignant people.

The following comments on this subject clipped from one of the great New York dailies of February 2, 1881, shows how our State, so much abused in this respect, is coming to be regarded by fair-minded men:

"Stalwart journals keep on repeating in 1881 the comments upon the lawless condition of Texas which were in order in 1851. As a matter of fact the annual report of the attorney-general of that State rendered at the close of last year makes an exhibit on this subject which Massachusetts might be glad to emulate. In 1878 there were 549 indictments for homicide preferred in Texas. In 1879 there were 344, and in 1880 259—being a decline of about 300 in two years, while the population was growing. During the same years there was a similar percentage of decrease in thefts—from 2,371 in 1878, to 2,081 in 1879 and to 1,758 in 1880; in forgery, from 258 in 1878, to 155 in 1879 and to 131 in 1880; in the aggregate of eight principal felonies from 3,548 in 1878, to 2,592 in 1880—while on the other hand the percentage of convictions increased. Our own City of Churches cannot present so clean a bill as is this showing from Texas. Moreover, in the opinion of the attorney-general of Texas, the percentage of indictments in that State, to the whole number of criminal occurrences, is as favorable as any like proportion in any other part of the Union. A generation ago the letters G. T. T., meaning 'Gone to Texas,'—indicated in the slang of the time the name of a fugitive from justice. They now apply to as prudent and

peaceable a community of settlers as can be found in any of the older States, or in any of the newer States in which, as in Texas, immigrants establish themselves upon the ever-spreading network of the railways.

AGRICULTURE.

Taking the word agriculture in its widest signification as including the rearing of live stock, as well as the products of the earth, Texas is pre-eminently an agricultural country. With her rich and inexhaustible soils, and her genial climate, inviting the farmer to labor the year round in moderation, and not compelling him to *hibernate*, as it were, for many months, where is there a field which offers so many attractions to the man who expects to earn his bread by the sweat of his brow?

PLANTING SEASON.

The mild winters generally admit of corn planting in February, and cotton in March. Wheat is sown in the fall, and harvested in May, so that flour from new wheat can be delivered in any of the Northern or Eastern cities fully six weeks in advance of flour from the older wheat-growing States. Field work can be done at all seasons of the year, and a loss of thirty days from out-door occupations, on account of heat, cold, or rain, in any one year, would be an over-estimate. During the cold, bleak winter months, when nearly all the farmers of the Northern and Eastern States are busy in the effort to keep the cold out and their stock from suffering, by constant attention, and feeding out corn, hay and other fodder, gathered during the summer, the Texas farmer, in winter, enjoys mild, pleasant weather, and his flocks and herds are in good condition, feeding on the prairies or in the timbered bottom lands, well sheltered from the northern blasts that constitute the Texas winter, rarely lasting more than five days.

Crops of Texas compared with the leading agricultural States south and west:

Yield per Acre of	TEXAS.	ALABAMA.	MISS'PI.	GEORGIA.	(OHIO.	INDIANA.	ILLINOIS.	KANSAS.
Indian Corn...	26	12	13	11	34.9	32.8	27	33.9
Wheat.....	16	7.3	6.3	7	18	16	13	6
Rye.....	18	.....	.....	.....	17.8	14.5	16.2	19.3
Oats.....	37	16	16	16	7	35	9	35.9
Potatoes.....	84	102	73	67	66	64	67	85
Hay.....	1.59	1.80	1.54	1.73	1.51	1.40	1.49	1.80
Cotton.....	275	132	164	161	.....	.....	.....	.....

We invite a careful examination of the foregoing tabulated statement of the leading agricultural products of Texas, as compared with seven of the principal agricultural States south and west.

These figures are taken from the report of the United States Department of Agriculture for 1878, which is the latest authority obtainable.

It will be observed that in the staple cereals of Indian Corn, wheat, rye and oats, Texas

compares favorably with the great grain-growing States, Ohio, Indiana, Illinois and Kansas, while in cotton production she stands pre-eminent, as compared with the principal cotton producing States of the South.

A fact that we desire to impress upon the thinking mind is rendered emphatic by this table, viz., that while the industrious farmer can produce the cereals here to the same extent and with as little labor as anywhere else, yet in Texas these have always been considered a *secondary* crop, for the reason that the extraordinary yield and quality of the cotton product, render it pre-eminently valuable to the farmer. If the same time, attention and careful husbandry were devoted to the cereals here, that distinguish the agriculture of the Western States mentioned above, there is every reason to believe that Texas would far outstrip them.

The following is taken from the *Farm and Orchard*, an agricultural paper published in Palestine, Texas.

A small but contented farmer furnishes the *Texas Farm and Orchard* with the following statement of his crops and the amount of land cultivated by his own labor and that of his wife:

"Ten acres of cotton, which will give five bales, \$250; 10 acres in corn, 180 bushels, \$90; 1 acre of sweet potatoes, 300 bushels, \$150; $\frac{1}{4}$ acre of goobers, 50 bushels, \$100; $\frac{3}{4}$ acre of grass nuts, 12 bushels, \$36; $\frac{1}{4}$ acre of onions, 30 bushels, \$60; 1 acre of sugarcane, 100 gallons, \$50. His wife raised 150 chickens, \$30; 50 lbs. butter, \$12.50; saved 20 lbs. feathers, worth \$10. He sheared 140 lbs. wool, \$28; sold four beeves, \$48; water-melons, \$5, and will make 3000 lbs. pork, worth \$180. He also made 40 bushels of wheat for his own use, besides vegetables, etc.

Though the yield of each crop per acre is not by any means extraordinary, it demonstrates the great adaptability of Texas soils and climates to varied agriculture, and how an industrious and frugal farmer may easily increase his store and provide against the adversities of poverty. This is only the ordinary result of industry and care upon the farm. Not an item shows above the common production of the country where the fields are carefully and attentively tilled. It will be observed that two of the ordinary and most profitable crops are neglected by this contented farmer, to-wit oats and fruits. The value of these crops could have been added to with comparatively little additional labor. In this section and upon these fertile soils, industry and common prudence are always rewarded with adequate profits. These are but the usual results of industrious farming. The agriculturist who applies to his acres the proper toil is most certain to receive satisfactory returns, and those who thus strive always find in Texas a genial and contented home.

COTTON.

Cotton is new, and will ever continue to be, the special crop of Texas, because her soils and climate are most wonderfully adapted to

its growth and maturity, and because it is one of the most profitable crops of the soil. It requires continuous labor in its production. The preparation of the soil should begin in January, by deep and careful fallowing. In the months of February and March the land is then thrown up in beds from three to five feet, according to the strength of soil. Planting is usually done by opening the beds or ridges with a small "scooter" or "bull-tongue" plow; the seed is sown then as regularly as possible, and covered with a harrow or drag. The better plan to cover is to run two furrows with a light turning plow, and afterwards dragging off with a *block*. The usual mode of cultivation, after the plants have come up, is to run beside the plants with a turning plow as near as possible, with the bar next to the plants, throwing the earth *from* them, then to follow with hoes chopping out the plants, leaving one or two plants standing every foot or foot and a half apart. The earth is then thrown back, taking care not to cover the small plants. The work after this is to keep the land stirred and prevent the growth of noxious weeds and grasses. The plants should be left to stand from two to four feet, according to the fertility of the land. Cotton should be cultivated, and the land very regularly stirred until the plant begins to open, which is usually in the months of July and August. The picking is done by hand, and is the most expensive part of its production. An average hand can pick about 150 pounds per day. Taking the whole picking season, 1,600 pounds of seed cotton will make a bale of 500 pounds of lint. The picking season is from the middle of August to the first of January. The ginning and baling is done upon the co-operative system, the owner of the gin charging such a per cent. of the cotton for putting up a bale. The common price is one-twelfth of the cotton. It is sold either at the nearest market town or at some seaport. It is the cheapest transported of all products, less liable to damage, and more value can be transported at a less charge than in any other product. The wagon that will bear, and the team that will draw sixty bushels of wheat worth \$60, will carry seven bales of cotton worth \$350. The cotton may be thrown out to take the weather for weeks without any material damage, while the wheat or any other product of the farm would be wholly ruined.

Like provision crops, cotton must ever be a staple production. Its adaptation to numerous uses will always require its production. It is the cheapest material from which clothing can be made. Its demand will increase with the growth of the human family, and its uses will increase in proportion to the cheapness of its production and manufacture. Texas is peculiarly blessed in her wonderful adaptability to the growth of this special crop. The yield per acre upon her soil is greater than that of any other State in the Union, and its fibre is longer, more silky, and in all respects superior to all other American cottons. It is quoted $\frac{1}{8}$ d. higher in the Liverpool market than other cotton. There is not one per

cent. of the lands adapted to cotton now under cultivation, although the yield the present year will be over a million bales, worth fifty millions of dollars on the farm.

INDIAN CORN.

Indian corn or maize is a common crop upon every farm. It is not raised in Texas as a market product, cotton and sugar being the special crops of the State. Each farmer aims to raise just corn enough to supply his own need upon his farm. Consequently its cultivation is frequently neglected for other crops considered more profitable. The modes of cultivation are about the same as those practised in other States, with the exception of less care and attention. The average yield per acre is twenty-six bushels. Its weight per bushel is from sixty to sixty-four pounds. In the middle and northern portion of the State it bears a firm solid grain, keeps well, and seldom ever becomes musty. By proper tillage, such as deep plowing, thorough pulverization and regular cultivation, the yield could be greatly increased. Owing to want of deep water at the Gulf ports, there is no market in Texas for corn, except that which is created by the local demand. If the facilities for transportation were adequate, the fecundity of Texas soils in this product would soon make it one of the most important of the marketable crops of the State. It is now only raised for domestic consumption, being the chief feed crop of the farms. The crop of 1880 is immense, and the price will not exceed twenty-five cents per bushel, except in a few localities.

OATS.

It is only of late years that oats have been generally cultivated. Until the introduction of the red non-rusting oat, it was a precarious crop, and was seldom attempted by the farmers of the State. With this new variety it is a certain and prolific crop. The average yield is thirty-seven bushels per acre. It is, however, cultivated now only for home use. Texas oats are of superior quality, and command the highest price in the New Orleans market. Upon the rich black lands or on the stiff alluvial bottom lands the yield is marvellous, often exceeding one hundred bushels per acre.

SUGAR.

This important agricultural industry has not attained that position in Texas to which its merits entitle it, taking into consideration the large body of land capable of production with profitable results. It is true that some few planters have devoted to the production of sugar in this State a great deal of attention and a large amount of capital, but the majority of persons engaged in this industry are planters on a very small scale, and have but limited means. The larger concerns, however, are from year to year adding to their capacity and ability to produce sugar to a profitable extent, and are demonstrating fully the value of this crop, when handled upon a substantial basis. What would add more than anything else to the encouragement of

sugar production in Texas, would be the establishment of a sugar refinery and cooperage somewhere in the State. For the latter industry the native timbers on the Sabine and Neches rivers offer every inducement for profitable investment, which should be instituted with an idea to cover cooperage for flour production as well as sugar. In this line there could be no question of success; and as to final results in the institution of a sugar refinery, the heavy expense incident to transportation and wastage of raw sugar in course of refinement, leaves but little doubt of the value and economy of such an enterprise.

The sugar crop of 1878, of which only we have statistics by us, met with serious disaster in a number of instances from excessive rains late in the season, and other untoward circumstances. We are prepared to give the exact product of the State in sugar and molasses—with the exception of the amount of molasses used direct from the plantations in the up-country—the data being furnished by mercantile houses in Houston and Galveston. The figures are exact. The crop of the State was handled by five parties in Houston and eleven parties in Galveston. The Houston merchants handled 2,155 hogsheads sugar and 5,156 barrels molasses; the Galveston merchants 3,209 hogsheads sugar and 6,388 barrels molasses. Add to this a shipment of 300 hogsheads sugar and 700 barrels molasses from Indianola to New Orleans, and the total crop of the State reaches 5,664 hogsheads sugar and 12,244 barrels molasses. The value of sugar and molasses produced in Texas for the year is roundly stated at \$433,969. Favorable circumstances and a judicious application of capital in the future will yet make sugar production in this State a matter of far more than ordinary moment. Pressed to its full capacity, sugar production should rank only second to the great staple, cotton itself.

WHEAT.

This important factor in the composition of crops has not attained that position in Texas to which its merits entitle it. In the immense prairie region of the State, where the soil and climate are most favorable, wheat is, as yet, an element of production subsidiary to the staple crop of cotton. It occupies in the grain-belt of Texas the same position held by corn in the Northwestern States, where wheat is the principal market crop. The initial period of successful wheat-growing and milling in the State dates back only six years, when an abundant yield and excellent quality of grain, won for Texas a reputation which stimulated production, and rapidly increased her milling capacity. Data from well-informed sources fixes the yield of that and subsequent years at:

Bushels.		Bushels.	
1875.....	3,000,000	1878.....	4,000,000
1876.....	2,250,000	1879.....	2,000,000
1877.....	2,000,000	1880.....	1,300,000

The milling capacity of the State is in advance of production, and more than ample to supply the population of the State with flour. The crop of 1879 did not run its mills but 110

working days, on two-thirds time. The marketed crop was 1,737,817 bushels, and the actual consumption, during the 4½ months was 1,784,206 bushels, requiring an importation of 46,390 bushels from Kansas and Missouri. If the mills of the State were run to their maximum capacity for twelve hours per day, they would not only bread the State, but give a surplus of over 500,000 barrels of flour for exportation, as will be seen by the annexed tabular statement, derived from authentic sources:

LOCATION.	Number of Mills.	Capital Invested.	No. Runs of Stones.	Capacity per day in Bushels.	Average hrs. labor per day.	Average months in operation.
Grayson.....	18	\$186,100	51	3,080	8	4
Collin.....	15	99,400	29	2,985	8	5
Ellis.....	14	81,380	22	2,070	8	5
Dallas.....	11	102,200	30	2,420	8	5
Kaufman.....	8	41,500	16	1,635	8	5
Cooke.....	8	31,000	15	1,500	8	5
Tarrant.....	8	60,800	19	1,400	8	5
Hill.....	8	24,900	14	1,445	8	4
Johnson.....	5	33,300	10	985	8	4
Parker.....	3	50,000	13	1,300	8	4
Denton.....	6	28,000	10	900	8	4
Wise.....	4	5,500	6	300	8	3
Montague.....	5	10,500	8	400	8	3
Flood.....	5	18,000	10	300	8	3
Other points.....	28	220,300	57	3,500	8	5
	149	\$993,180	310	24,220	8	4½

Actual consumption per year, 1,784,207 bushels.

Maximum capacity per year, 7,556,640 bushels.

A review of the crops since 1875 will show the disadvantages with which the wheat-grower had to contend, and the causes which are operating in retarding production. The crop of 1875 was abundant in yield and superior in quality, and, as already stated, stimulated production and increased the number and capacity of the mills of the State. Increased acreage was planted in 1876, but, owing to an unfavorable season, the yield was less in aggregate than the previous year, and the quality of the grain inferior. The following year, 1877, was disastrous, the early wheat being cut short and the late crop almost totally destroyed by rust. The crop of 1878—the largest ever raised in the State—was ruined in quality during the harvesting period, and the product, as a crop, was not marketed. In 1879 the acreage was increased slightly, but the crop cut short by drouth. The quality of the grain, however, retrieved the reputation of Texas mills, which had been impaired by the damaged crop of the previous year. The crop of the current year, reduced in acreage by the severity of the drouth of 1879, which was a bar to breaking up land, was damaged by reason of continuous rains after the harvest season.

The misfortunes attending the production of wheat during the past five years are chargeable to shiftless cultivation, want of management in saving the crop after harvest, and carelessness in the selection of seed, cleaning and grading of the grain. The neglect of these conditions, indispensable to successful and profitable wheat-growing, is due, as intimated

above, to the over-influence of cotton as a staple crop, as exhibited below. The table details the productions of 1879 in the third congressional district, an exceptionally bad

year for corn and small grain, which, in many localities, were totally destroyed by the severest drouth experienced in the State in fifteen years:

COUNTIES.	Tilled in 1879.	CORN.		OATS.		WHEAT.		COTTON.		Tilled in 1880.
		Acres.	Bushels.	Acres.	Bushels.	Acres.	Bushels.	Acres.	Bales.	
Collin.....	135,901	53,178	994,206	11,014	233,188	23,813	183,610	47,896	22,203	167,571
Cooke.....	79,780	31,400	498,400	5,942	124,782	9,371	54,026	33,067	16,030	89,500
Clay.....	20,970	7,866	117,990	2,622	52,440	2,632	20,976	7,866	3,440	20,976
Callahan....	5,205	3,400	27,200	65	810	1,240	6,200	500	125	8,250
Dallas.....	169,035	48,55	655,914	10,292	236,412	28,395	207,087	51,798	28,160	203,808
Denton.....	62,872	23,777	417,963	7,559	151,180	8,160	65,280	24,776	11,320	62,775
Ellis.....	152,851	42,960	581,191	6,431	168,490	19,623	184,259	53,835	19,917	183,412
Erath.....	42,476	12,141	230,679	3,993	79,860	4,201	37,809	12,141	6,030	32,375
Grayson....	223,277	54,864	961,805	9,729	184,857	15,903	86,182	40,581	19,223	183,412
Hill.....	82,777	31,523	324,632	4,485	137,786	6,475	50,630	37,094	8,286	115,036
Hood.....	19,600	8,500	127,500	2,500	75,000	600	3,200	8,000	3,800	25,000
Johnson....	94,620	35,751	372,068	5,191	131,610	13,405	88,724	40,270	13,315	243,665
Jack.....	20,168	9,813	147,195	3,261	65,220	3,281	26,248	9,813	4,407	26,175
Kaufman....	59,505	21,109	321,235	3,975	94,764	7,330	62,601	23,601	9,466	75,257
Montague....	26,896	10,086	151,194	3,340	66,000	3,424	27,392	10,086	4,068	26,900
Parker.....	56,400	28,400	4,600	1,500	50,000	5,000	22,000	21,000	1,000	70,000
Palo Pinto..	18,576	9,966	104,490	2,322	46,440	2,322	18,576	6,966	3,330	18,600
Rockwall....	25,381	9,657	127,999	1,324	34,816	2,871	23,732	8,637	3,714	33,518
Tarrant.....	65,248	24,468	367,029	8,156	163,120	8,156	65,248	24,468	12,130	65,250
Wise.....	58,552	21,710	325,695	7,500	150,000	7,642	59,136	21,700	10,300	60,575
Frontier Counties.	51,798	20,212	281,562	10,310	144,796	6,629	48,644	14,617	6,158	52,991
Total.....	1,278,490	506,131	7,603,034	111,374	2,490,601	181,453	1,345,560	479,532	203,322	1,755,047

To arrive at the acreage in cotton in the grain belt, estimates for Fannin, Lamar, Hunt, Rains, Van Zandt, Navarro, Limestone, McLennan, Bosque, and other counties not comprised in the third congressional district, must be added to the above table, which swell the cotton acreage in round figures to 900,000 acres, against 250,000 acres in wheat, yielding the crop of 1879. This disparity in quantity of land tilled, militates against the production and quality of the wheat, the time necessary for the proper preparation of land for the grain crop being demanded for and devoted to the gathering of the cotton crop. With a judicious distribution of crops, care in the selection of seed, thorough preparation of land, provisions against wet harvesting periods and careful grading, the factors, soil and climate, quality of grain, and an unlimited demand for production, will align Texas, in the near future, with the foremost wheat-growing States in the Union.

The table illustrates the advantages of diversified crops, and is suggestive of the wonderful capabilities of that portion of the State where the two great staples, cotton and wheat, are grown successfully side by side. The crop result demonstrates the certainty of a fair return in this favored section, under the most adverse season. For instance, Grayson, located on Red River, is ordinarily a prolific small grain county, and Hill, located on the Brazos River, reputed to be one of the best cotton counties. An exceptionally bad cropping year, instead of being disastrous to the farmer, as would have been the case had the soil, as elsewhere, been adapted solely to either cotton or wheat, simply transforms the latter into a wheat county and the former into a cotton county. Another feature is the fact, that

notwithstanding the short crops of 1879, confidence in the capabilities of the land has stimulated an activity in developing farms in 1880—the increased acreage in twenty-two counties heard from being 476,557 acres.

Texas is so young a State that wheat-growing in it may be considered as yet experimental, and that the experiments have not so far determined what is the best variety to grow. In Southern Texas no man for a long time thought of sowing oats, because the crop was considered certain to be destroyed by rust. Yet at last a variety was found which entirely resists the rust, and now oats are extensively grown in Southern Texas, yielding very large crops. So, a short time ago, no man in Central Texas much below the latitude of Austin, thought of sowing wheat on account of the rust; but at last the Nicaragua variety turned up, which proved admirably suited to the lower portion of the State, resisting rust and yielding from twenty to forty-five bushels to the acre. It is now considerably grown in those parts, and would be very extensively grown if the Texas millers would procure the right sort of machinery for grinding it. Instead of doing so, they have discouraged its production. So in North Texas and other portions of the State, the variety best adapted remains yet to be discovered, and no doubt will be discovered soon.

We will take the liberty of making a suggestion on this point, and hope it will be borne in mind. It is a suggestion on a point of great value. The wheat sown in Texas, except the Nicaragua, has all come from the North, from regions whose soil and climatic conditions differ widely from our own. Would it not be better to get it from southern countries whose soil and climatic conditions are very similar

to our own? Does it not look reasonable and natural? It undoubtedly seems so. In Mexico and California they have a climate and soil remarkably akin to ours, and it is a well-known fact that these two countries are renowned for the production of wheat—not only for the quantity to the acre, but for the surpassing excellence of the article. Does not common sense suggest that we should go to those regions to get our seed-wheat, rather than to Illinois and Ohio? Let some of our enterprising agriculturists try it, and we do not question that they will find themselves largely benefited.

The wheat of Spain would also be worth attention in this direction. That region has a climate very much like our own, and its wheat stands at the very head of the wheats of the world. The wheat of Mexico was derived from Spain, and the most of that grown in California was derived from Mexico. The wheat so largely imported from Trieste, on the Mediterranean, also deserves attention.

It is worthy of mention that the wheat of Texas ripens from six weeks to two months in advance of that of the Northwestern States, and that in general it weighs much more to the bushel, and has a much smaller per cent. of moisture. What it lacks in moisture as compared with the Northern wheat, it makes up in solid nutritious elements. It is therefore a richer wheat than the Northern wheat, and a pound of its flour will make more bread than a pound of Northern flour. It would also bear transportation over the seas, especially through tropical latitudes, much better. No man ever knew a barrel of Texas flour to *sour* in Texas, though it has been kept in warehouses in Galveston, more than a year, to try it; while the flour from the North soon sours in the South. Texas should become a very large exporter of flour, particularly to South America and the West Indies. She will become this soon if her wheat industry is only properly fostered and encouraged intelligently, as it should be.

As evidence of the value of Nicaragua wheat, which has been so successfully grown wherever tried in Southern and Western Texas, we clip the following from the *Waco Examiner* of June 25, 1881:

NICARAGUA WHEAT—A BONANZA.

"From time to time, for several years past, the *EXAMINER* has entered a plea in behalf of the Nicaragua as a good wheat, worth, certainly, very much more than it brings in market, if only the mills in this country were prepared to grind it. But no less persistently has it been decried, certain millers going to the extreme of asserting that, strictly speaking, the Nicaragua is no wheat at all, but a sort of barley, devoid of the flowing or flouring property which distinguishes the standard grain of the queen cereal. Though not very well up in such matters, we have, with all due respect, doubted the correctness of this conclusion and have in every way possible encouraged investigation as to the value of this grain in other markets, notably New Orleans and Liverpool. It is with no little satisfac-

tion that we now learn after so long a time and after so many trials and disappointments that the wheat, the Nicaragua, a sample of which was sent, is pronounced by Messrs. Hartly, Watson & Co., grain merchants, of Liverpool, a good hard wheat, worth in that market \$1.30 a bushel. In confirmation of this valuation, we yesterday saw a telegram from a responsible merchant of Houston, stating that he was offered \$1.15 a bushel for the Nicaragua, sacked and delivered on board a vessel in New Orleans. The cost of transportation added makes \$1.30 the Liverpool valuation. If, now, this wheat is worth \$1.30 in Liverpool, or \$1.15 on board a vessel in New Orleans, what is it, rather what ought it to be worth a bushel here in Waco or at other points in the interior?

"The cost of transportation from this point is per car-load of 20,000 to 24,000 lbs. to Houston, \$40; to Galveston, \$50; and to New Orleans, \$80, or in round figures about 24c. a bushel to New Orleans. Now, with these figures before us, what ought Nicaragua wheat to be worth in this market? The market price, we believe, is, at Waco and other places generally over the State, 40 to 50c. a bushel. Add transportation say 25c., and the buyer has a profit of 75c. from \$1.15, forty cents a bushel! A bonanza for the buyer certainly, whether very profitable to the producer or not. With these facts before them, however, producers ought to be able to come in for a little share of the profits to be realized on the much decried Nicaragua wheat—a crop which of all others succeeds best in Texas, and which if it maintain the price above quoted will prove a veritable bonanza, not to a few buyers only, but to the farming interest of the State."

AMBER CANE.

The earlier experiments in the manufacture of syrup and sugar from the Sorghum cane were unsuccessful to a certain extent in this State, as they were throughout the Union generally. This was mainly owing to the crude and imperfect appliances and machinery used in the manufacture of its products.

A few years since, however, the Amber cane was introduced, and since its introduction the efforts in this branch of industry have resulted in the realization of the most sanguine hopes.

Proper machinery is being introduced for expressing the juice and manufacturing it, and syrup and sugar of a very superior quality are now made at their own homes by some of our farmers at a very small cost.

The following extract is clipped from the *Austin Statesman* of Nov. 5, 1880:

"Those who have made trial of the Amber cane in Western Texas this year report that the experiment was attended with the most satisfactory results. The Amber cane is excellent for making sugar and molasses, and its cultivation is recommended to every farmer."

POTATOES.

Both sweet and Irish are raised in great abundance. The former grow to perfection in every part of the State, and the latter are

equally fine, but do not keep so well. Irish potatoes ripen very early, and a profitable business is done shipping them to Northern markets before the new crop comes in in that section.

WILD GRASSES.

Perhaps no country in the world has become more famous than Texas for its wild grasses, which everywhere cover the untilled soil with a sea of the greenest verdure. Of these there are several kinds, the most noted of which are the "mesquite" (pronounced "muskeet") and the "gama." The mesquite is a native of Middle and Western Texas, is very hardy, a rapid growth, and but little affected by dry weather. All kinds of stock are fond of it, and it is very nutritious and fattening. There are two kinds, the "bearded" and "curly," the latter a short curly grass, as its name implies, particularly adapted to sheep and horses. The "gama" grass delights in dry uplands, and is found in its greatest glory west of the Pecos River and along the upper Rio Grande. These high, drouthy table-lands are covered with a dense growth of "gama" which, although it may be brown and sere in appearance, is yet green and succulent near its roots in the greatest drouths. Stock of all kinds are exceedingly fond of it, and keep rolling fat upon its succulent leaves even in the driest and coldest winters.

But little attention has been paid yet in Texas to the cultivated grasses, but many kinds, especially the "Bermuda," do well, and the time is not far distant when the thrifty farmer will find it to his interest to aid nature in this, as in her other desirable products.

TOBACCO CULTURE IN TEXAS.

Previous to the late war tobacco was cultivated with considerable success in most of the Southern States, and more especially in Virginia and the Carolinas, and yet a considerable portion of the export supply, before and since the war, has been produced in Connecticut, Ohio, Indiana, and other Northern States, where the climate and soil are far inferior in the growth of that product to that of the Southern States.

During the past few years, experiments of a most satisfactory character in tobacco growing have been made in many counties in Texas. These experiments have shown most conclusively that the soil in many sections of this State is most admirably adapted to the different varieties of this staple. It is true that these tests have been made chiefly in the central counties of the State, yet it is the opinion of experienced tobacco planters in other States, that tobacco can be produced advantageously in nearly every portion of the State, and that Texas is destined in the immediate future to become one of the largest and most excellent tobacco producing States in the Union. There are less dangers to the crop there from early frosts than in Virginia, and the same is true, when protracted droughts are taken into consideration.

FLOWER CULTURE.

The cultivation of flowers in Texas can

hardly be called an industry, because they come forth to bud and blossom, as the rain comes to water the earth, and the sunlight comes to gladden the morning, and the leaves put forth to yield a grateful shade. It is more of a recreation and pleasure than an industry to cultivate the flowers in a climate where there is perpetual bloom. Every variety known to a tropical clime is there grown, and the wondrous plumage of the birds of South America has not more beauty and combination of colors than the flowers of Texas. They adorn the garden, the home and the prairie, and are everywhere the cheerful emblems of a cultured and refined civilization. A State, therefore, that adds to its magnificent crops of cotton, grain, vegetables; its vast herds of cattle and horses, and flocks of sheep, the fruits and flowers that enrich and make happy its citizens, justly claims the favorable attention of the world.

FRUIT CULTURE.

The original Texans were badly demoralized on the subject of fruit-growing, because of the failure of so many untried varieties which must necessarily have to pass the ordeal of a new climate in reaching a successful list. Now we plant with confidence many varieties of apples, pears, peaches, plums, grapes and small fruits.

As soon as experimental tests had settled the orchardist down upon the three May apples, including the Red Astrachan, the Red June and Early Harvest or the month of June; the Sweet Bough and Horse Apple for July; the August Pippin for August; the Autumn Strawberry for fall, and the Ben Davis and Shokly for winter, we began to see that Texas was an apple country. The foregoing varieties all ripen well in our climate, without rot-spot or tan, and are as well developed and possess as fine flavor as if raised in higher latitudes. These kinds are successful anywhere above latitude 30°.

Pears grow well and bear well here. The trees have been attacked by blight only twice in our whole history. The Bartlett and Duchess came to us so highly recommended that it precludes experiments to a great degree with other sorts. We believe there is a better list of pears for Texas than these, although the farmer and orchardist are succeeding well with these.

The peach is a perfect success, and when shown in the markets or exhibitions of the northwest, excites the wonder and admiration of those who have always been accustomed to the same varieties. As an evidence that Texas possesses natural capabilities in soil and climate for the perfect development of the peach by her hundreds of seedlings, which are overtopping the standard sorts in size, flavor and excellence, a peach now called Senator Reagan, decidedly the best peach every way, in size, beauty and flavor, that has yet been produced, was first grown in Texas on the farm of the Hon. J. H. Reagan, of Anderson county, and we might point to many remarkable products in the way of peaches in our country, all grown from seed

selected from the fine varieties of the grafted sorts.

Grapes of varieties which suit our climate, and these only of the species *Aestivalis*, are successful and healthy. Some vineyards have reached the age of twenty years, and have not failed in producing good annual crops during the time.

Grapes of the species *Aestivalis* are the best American grapes for wines, according to reports from highest authorities, and we have at least a dozen kinds of them which suit our country.

The Lenoir for our coast, the McKee for the central territory, and the Herbemont for northern Texas, have proved perfect successes thus far.

All plums of the Chickasaw varieties yield certain and profitable crops, and of these the Brill, Wildgoose and Miner take the lead for a succession, and never fail to bear, and are but slightly affected by the curculio.

Blackberries and strawberries—the latter, of select varieties—give perfect satisfaction and require no protection in the winter.

The former is a native fruit, and the introduced finer varieties scarcely excel our natives.

Raspberries are cultivated a great deal in Middle, Eastern and Northern Texas. The black-caps are best adapted to our climate.

We might add that apples, pears, peaches and plums begin to ripen on the tree from the 6th to the 20th of May, and continue to ripen to the 25th of November, and all this protracted season is filled with abundant varieties, so as to keep them all the time on the table or on the way to market.

The fig attains its greatest perfection in the south and southwestern portions of Texas. No-where else is this fruit so luscious and so tempting, the small purple fig fairly bursting open when ripe with its own sweetness. In its season it is a welcome addition to the breakfast table, and at dinner it is not the least attractive portion of the dessert, but no attempt is made to utilize what is not thus used, and the birds and poultry generally consume the surplus crop. There is no reason why it should not be dried and become a valuable article of consumption and export.

BEES AND HONEY.

Bees and honey are natural products of Texas. Wild bees are found here in great plenty, and they thrive well when domesticated. But very little attention has been paid to this industry, although we hear recently of several instances where bee culture has been very successfully carried on. Still it has not been altogether neglected, for in nearly every neighborhood a few swarms may be found, which, however, are generally allowed to take care of themselves. Some are placed in empty barrels, with sticks across them; others in discarded goods boxes; others in hollow trees sawed off in sections. The Texas "bee house" is generally a most primitive institution and a "make shift." They may be seen scattered about promiscuously, in the fence-corners,

under shade trees, in front yards, back yards, gardens—anywhere about the premises. As to the care which they receive, generally it amounts to about this: they are lived where they swarm, and robbed when the family requires honey.

This business is extremely profitable in many countries and certainly should be in Texas, where flowers bloom every month and during most of the year in the greatest profusion. It is a beautiful occupation, that of rearing bees, and one that can be prosecuted, on quite an extensive scale, with little or no capital. Every family, even of renters, might have a few stands of bees. It is a business in which ladies may pleasantly and profitably engage.

GARDEN VEGETABLES AND MELONS.

Almost all garden vegetables do well in Texas, although her diversity of soil, climate, etc., is so great that an intelligent adaptation to the peculiarities of the locality must be carefully studied by the successful cultivator.

Root vegetables grow particularly well and finer potatoes, beets, parsnips, carrots, turnips, radishes, onions, etc., are not raised anywhere.

Of melons, both water and musk, we have a greater variety, and they grow to absolute perfection. Watermelons attain to enormous proportions, and the cantaloupes of Texas are unrivalled in flavor. Squashes and pumpkins do well and are richly flavored, and no finer tomatoes are grown. No finer beans and peas can be grown than those produced here.

WILD FRUITS, NUTS AND BERRIES.

Texas is blessed with a reasonable share of native products coming under this head, such as plums, persimmons, grapes and black and dew-berries. The "mustang" grape grows everywhere in the river bottoms in great luxuriance, and from it an excellent quality of red wine is frequently manufactured. The "post-oak" grape, seems to be a modification of the former, and is very plentiful on sandy uplands. Blackberries are very abundant in the eastern part of the State, and dew-berries in the middle and western portions; both of these are too well-known to require description. In Eastern Texas the walnut and the hickory-nut are common, while Middle, Northern, and particularly Western Texas, are the native home of the "pecan," which here grows to its greatest perfection, and which from its "toothsomeness" has become famous all the world over and is yearly exported in large quantities. Statistics on the yield and quantity of this nut annually exported from the State have never been collected, so far as we know, but it is safe to estimate that the pecan tree, without any cultivation, yields an annual revenue of not less than two million dollars. The nut sells readily, even at points far removed in the interior from railroad transportation, at from \$1.50 to \$2.00 per bushel. We are not aware that the tree has been cultivated to any extent, but it is safe to predict that a handsome addition to the product of his farm could, in ten years, be secured by any farmer in Western Texas, who would plant and give a little at-

tention to a small plantation of this valuable nut. As an evidence of the value of the pecan crop this season we clip the following paragraph from the *Galveston News* of November 5, 1880:

FAYETTE COUNTY.

"Mr. Dignowitz says, that not more than one-fourth of the cotton produced in the vicinity of La Grange has been picked. Colored men have abandoned the cotton-fields, and gone to gathering pecans, at which they realize about twice as much money as they do picking cotton. The demand for labor is very great."

GRAPES, WILD AND DOMESTIC.

Texas is rich in wild grapes. There is no portion of the State except the Staked Plain, in which they are not found in abundance. Of these perhaps the most important is the Mustang, from its great abundance, wide habitat, and sterling wine-making properties. It is found in nearly every portion of the State, in the valleys of the streams, climbing to the tops of the tallest trees, and often extends out into the forests away from the streams. It is, we believe, confined exclusively to Texas, and among botanists is classed as a vine with itself, being distinct from all other classes of grapes. It is the most vigorous grower of all and none exceed it in abundant bearing. We have seen the vines sometimes so full of the ripe fruit, that had the leaves been stripped off, they would have presented almost the appearance of a vast solid mass of grapes. The fruit is dark purple or black, nearly half an inch in diameter. The pulp is white or pearly in appearance. They are not a table-grape, and require to be eaten with some care in order to be palatable. There is an acrid juice between the pulp and the skin, which when taken in the mouth produces a disagreeable, somewhat stinging and "puckering" sensation. The skin may be easily stripped off, leaving the pulp still adhering to the stem; and as the acrid juice goes with the skin, they may then be eaten with relish. They are especially refreshing to the traveller on horseback on a warm summer day, when he stops in the shade to rest, and more likely to be esteemed by him as a food-grape than by anyone else. Their great merit is in wine-making. When well treated it makes a robust wine of stout body, superior in intoxicating properties to any of the French clarets with which we are acquainted. It has a decidedly game flavor, and the lines of Longfellow are not inappropriate:

"The red Mustang
Whose clusters hang
O'er the waves of the Colorado;
And the fiery flood
Of whose purple blood
Has a dash of Spanish bravado."

Again it may be handled so as to make a mild claret; and we have tried some made by Col. Ashbel Smith, of Harris county, which had a remarkably rich flavor, distinguishing it from all other wines. The Germans and Bohemians of Western Texas make quantities of it, but mainly for their own use. Very little finds its way on the markets. We believe the wild Mustang—"cut throat" as it is

often called by the Texans—has a big future in it as a wine grape. We want skilled wine-makers to turn its good qualities to account. It has no diseases, and its crops are certain at all seasons. It may, no doubt, be much improved by selection and cultivation, as we have often noticed marked differences in the quality of the grapes taken from different vines, some being much better than others in sweetness and juiciness.

Next in importance probably is the "post-oak grape." It is classed by some botanists as a variety of *Vitis Labrusca*, by others as of the *Vitis Aestivalis*; but Dr. Buckley, of Texas, considers it a distinct species, and has named it *Vitis Lincecum*, after Dr. Gid. Lincecum, a well known Texas naturalist, now dead. Dr. Buckley is probably right. It is found in most of the post-oak regions in the State, and is a good medium-sized grape, very palatable and good for wine. It has been domesticated to some extent and shows great improvement by cultivation. Dr. Yoakum grows in his extensive nurseries at Larissa, Cherokee county, a grape which he calls "McKee's Ever-bearing," and which is merely the post-oak grape improved by cultivation. It has greatly increased in size, flavor and juiciness, and is considered by him a great acquisition.

The muscadine or "bullace" is common in Eastern Texas, and is the same as the grape of that name found all over the Southern States.

In the highland and mountainous districts, the "mountain grape" grows abundantly. Dr. Buckley classes it as a distinct species, calling it *Vitis Monticola*, but others class it with *Vitis Supestris*. It is a bluish grape, about the size of buckshot, and covered with a whitish "bloom," very sweet and altogether excellent. It is a great bearer, and not being much of a climber its large bunches are easily gathered. This grape deserves cultivation, which would no doubt add much to its already excellent qualities. It is full of juice and makes a sprightly wine.

Winter grapes abound along the water-courses of Western Texas, but are very small, black and sour—as they are everywhere else that we have seen them. *Vitis Suprestes*, very much like the mountain grape, if it be not the same, grows in the same localities.

Of the cultivated or domestic grapes the Herbemont and Black Spanish are undoubtedly the best so far. They are native Southern grapes of the *Vitis Aestivalis*. They combine every excellence except that of size, being about a half inch in diameter. They are equally well adapted to the table and the wine-maker, the Herbemont furnishing a light-colored wine, and the Black Spanish a dark colored. They grow luxuriantly and yield large crops everywhere in Texas, and are subject to no diseases or damaging attack from insects. In these two grapes the Texans have a great gift indeed. The famous "El Paso" grapes, from which the Mexicans on the upper Rio Grande make their celebrated wines and brandies, are but the Herbemont and Black

Spanish under another name. The latter grape no doubt derived the name by which it is known in Texas, from its having apparently been disseminated over the State from that direction. How it happened to be largely cultivated in that quarter first is one of the unexplained things, but it is probably due to the enterprising Jesuit priests, who some two centuries ago wandered all over the country afoot, and often alone among the Indians. These singular and devoted people, all of them scholars and naturalists, were quick to find out the good things of nature and to utilize them. They cultivated these grapes first on the Rio Grande, because their nearest "missions" to Texas were first established there. The Herbemont and Black Spanish differ only in color, the first being light-skinned and the latter dark-skinned. Perhaps there may be also a slight advantage in the Herbemont in size of fruit.

Many vineyards of these grapes are grown in various parts of Texas, and all with entire success. An intelligent German near Houston devotes his entire time to this culture and wine making, and the demand for his wine is greater than he has yet been able to supply. He receives large orders every year for his cuttings from France, and fills them at a remunerative figure. The French have found out the excellence of the grape, and that, even when transplanted into France, it resists the attack of the destructive *phylloxera*.

The famous Scuppernong of North Carolina does very well in all the eastern and southern portions of the State east of the Colorado. It is derived from the muscadine or *bullace*, which is native here. Our horticulturists are introducing it extensively, and it has not failed to respond pleasantly to their efforts. The fruit, we think, is hardly so good as it is on its "native heath" in North Carolina; still it is very sweet and juicy, and makes a good light table wine. It would no doubt, from its ample supply of saccharine matter, make a good brandy.

The Labruscans, or the Northern Fox grapes, in their multitudinous varieties, have not yet established themselves in Texas. Our experience and observation are that many, perhaps most of them, do finely for awhile; they deliver two or three excellent crops, but then they are attacked by the *phylloxera*, or the mildew or rot, and die. We believe that in Eastern and Southern Texas it is useless to grow them. In Northern Texas there are many who insist that the Concord especially has established itself; but we think it too early yet to claim this. However, if the Northern Fox grapes shall do well anywhere in Texas, it will be in North Texas and the Panhandle.

And if it be thus with the Northern Fox grapes in Texas, it will probably prove worse with the European grapes, or *Vitis vinefera*, though there are many who, from these experiments, express the utmost confidence in the Black Hamburgh, the White Hungarian, and the Golden Chasselas. Dr. M. Perl, of Houston, has a fine vineyard near that city, of the best foreign grapes, which produced

luxuriant crops last summer—1880, and he believes they have come to stay, but we fear his experience will be like that of others with the Labruscans, and that he will soon abandon the foreign grapes for our "natives to the manner born," which are not at all inferior to them in good qualities. We hope it may not be so. At all events, the enterprise of horticulturists deserves commendation. Most of those who have attempted the culture of the foreign grapes have already abandoned them. If they will succeed anywhere in Texas, it will probably be in the valley of the upper Rio Grande. They succeed perfectly in California, and the climate about El Paso is much the same as in that State.

The difficulty with the European, as with the Labruscan, with us is the *phylloxera*. This is a small insect like the curculio, but much more destructive. It deposits its eggs in the fruit of the grape, which then falls to the ground. As soon as the grub hatches he leaves the decaying grape, and by instinct finds the root of the vine and buries himself into it, sucking up the vitalizing juices, and the vine dies. No successful remedy has ever been applied to him yet, although the French scientists have done and are still doing all in their power to circumvent and destroy him. Our native grapes are not attacked by this creature. Not a single instance has ever been known of any of our native Southern grapes being assailed. The reason is that the bark of the roots, and perhaps the trunks themselves, contain a sharply acrid juice which repels and perhaps kills the *phylloxera* at once. If he makes the attack he abandons it instantly. At least this is the explanation given by our horticulturists, who are usually practical men of fine intelligence, and no doubt it is the true one.

And here follows an interesting suggestion, and we hope it will be well considered by our horticulturists. Since the *phylloxera* does not, dare not, and cannot attack our native Southern grape-vines, may it not prove entirely practicable to grow the Northern and European grapes by grafting them upon our native stocks? Why not? It is easy to graft the grape. Let the experiment be tried. It may be that in this way we may naturalize in our country all the choicest grapes of the world.

We have seen the Herbemont and Black Spanish grafted on the wild Mustang, and producing just as luxuriantly as if grown upon their own stocks. Major Rowan Green, of Columbus, Colorado county, Texas, tried this for amusement or experiment, and was astonished at the success and the ease with which it was accomplished. He has many such vines growing in his yard in that town, offering their luscious fruits every summer at his doors and windows. Any one can see this by visiting his place. And if this can be done with the Herbemont and Black Spanish on the Mustang, why may it not be done with the Labruscans and the foreign varieties? Indeed, Dr. Grant, of the city of Austin, has one such instance in his yard. Last spring (1880), for

experiment or amusement, he grafted a cutting of the Malaga grape upon the wild Mustang, and it has grown over a dozen feet the first season. Perhaps next season it will bear abundantly. Any one can see this who will visit Dr. Grant's yard in Austin.

But whether such experiments may succeed or fail, we are richly blessed with native grapes in Texas. Perhaps no country is more so; and nothing can be more certain that at some day Texas will be a great producer of wines. We lack nothing to secure this at once, except plenty of people skilled in that industry.

Capt. John Pope, of the U. S. Army, in a report to Jefferson Davis, Secretary of War, in 1854, speaking of the Rio Grande valley and the grapes, says: "The most valuable feature of the Rio Grande valley is its most wonderful adaptation to the culture of the grape. It attains here a flavor and richness unknown to any grape I have ever seen in the United States, and is produced, when cultivated, in the most profuse abundance. An examination of the character and climate of this region exhibits a striking resemblance to those of the south side of Madeira, and it is much to be doubted whether this portion of Texas is at all surpassed in the quality of its grapes even by that favored island. There are comparatively few vineyards in the country, but they produce most abundantly a delicious grape, and the wine, although very rudely and imperfectly manufactured, and drunk in the same year, and probably within six months after fermentation, is of very fine flavor and of several varieties. I am convinced that one of the most important elements of the future wealth of this country is to be found in its peculiar adaptedness to the manufacture of wine, and it needs but opportunity and encouragement to confirm the truth of this opinion."

The grapes which Capt. Pope found so delicious are the Black Spanish and Herbemont.

The following is translated from an article in the San Antonio *Free Press*, whose editor, Mr. Seimmering, is a connoisseur in wines:

"We would like to ask our farmers and gardeners whether they ever saw in their lives a failure of crop in grapes suitable to our climate? We know we have frequent failures with the peach and apple, and even the water-melon sometimes fails, but we never heard of anything of the kind with the grapes. They thrive in good and bad years, and every year the vines are covered with grapes. But while all this is true, the culture of the grape remains a secondary work or mere plaything. So far as we know it has only been practised by a few in good earnest. The fact cannot be disputed that the vines grow here on any soil. One of our fellow-citizens, Mr. Woldert, who lived in San Antonio before the war, but now at Tyler, in Smith county, writes us his experience in the cultivation of the grape-vine, and what he writes is interesting, because his experience places it beyond doubt that Texas cannot be surpassed in grape culture, and that a variety of grapes will grow to perfection on every soil in Texas, if they are only properly

treated. Mr. Woldert is a practical vintner, which is attested by the fact that he has sent us a dozen bottles of different kinds of wines made by him, as a sample of his production. If this wine were produced in quantities large enough, we should have no further use for imported wines, and could we produce so much that we could export it, this branch of industry would be as important to Texas as it is to California. Perhaps some of our readers will be astonished when we communicate what Mr. Woldert has accomplished in grape culture and wine making, and how it has paid him for his diligence. But, however wonderful it may appear, it is nevertheless the truth, and can be proved by the people of Smith county. Mr. Woldert writes:

"The things I communicate are no castles in the air, and if any doubt, they are politely requested to come and take a view and convince themselves. In the year 1860 I planted two-year-old Herbemont roots. They are now on stocks six to seven inches in diameter, and have produced during sixteen years, full crops regularly. I never had a failure of crop, and never in Europe or anywhere else have I seen vines so full of grapes as here. My trellises were of uncommon strength, but they broke down from the weight of the grape, and I had to support them with forks. These vines can be planted 12 x 12 feet apart, consequently 302 plants to the acre. Every vine will produce at least six gallons of wine, which makes 1,812 gallons per acre. We will, however, consider that this amount cannot be made by everyone, and on all soils, and will take off one-third. This leaves 1,208 to the acre, which may be depended on under the most unfavorable circumstances. Is it not to be wondered at that this industry has not been commenced long before now and practised on a large scale here? The only difficulty is the want of experienced and skillful immigrants. We see in some of our European papers that a ship loaded with 95,844 gallons of wine, worth \$85,926, landed lately in Bremen from California; and here lie our vast number of acres idle, and on which the same may be accomplished here as well as there, if we only had the skillful hands to till them and make the wine.

"The varieties of grapes cultivated by Mr. Woldert are as follows: The Scuppernong, Herbemont, Catawba, Isabella and Concord. From one vine of the Scuppernong, planted in 1864, he made last year forty-eight gallons of wine. He also makes a very drinkable wine out of wild grapes. Consider this wine worth only fifty cents per gallon; here is \$600 per acre, and how much more easy and interesting is a vineyard than a cotton field!"

LIVE STOCK.

Next to the cultivation of the soil, the rearing of live stock is the most important grand division of the industries of the State. This is to be expected, of course, from the richness and abundance of the native grasses and the wide ranges of free pasturage. Her vast prairies, abundant and luxuriant pasturage, her springs and streams of clear and sparkling

water, and still more her uniform and delightful climate, all combine to make Texas excel all other countries in this important industry. When the State was first peopled, her prairies were found covered with enormous herds of buffalo (bison), antelope, deer, and wild horses, which under the influence of favorable natural environment had increased to an astonishing degree. The first settlers were not slow to take advantage of the capabilities of the country in this respect, as indicated by nature, and from the earliest times in Texas, the raising of live stock has been one of the chief and most profitable industries.

CATTLE.

A few years since the horned stock of Texas was confined to the native breed, and ran wild upon the prairies with little more care than the trouble of branding the calves. Since then a great improvement has taken place in the quality of the stock by mixing it with the finer grades of imported breeds, and this policy is not only found to work a valuable improvement in the stock itself, but adds greatly to the already large profits of the industry by increasing the quality and price of beeves that are now in so great demand in the eastern markets, and for the new traffic of exportation to Europe.

The rapid increase of population in the State and the consequent enhanced value of land, have to some extent interfered with the operations of the old time "cattle men," who, perhaps without possessing an acre of the soil, owned thousands of head of fat cattle, and could boast of enormous wealth. They have either been compelled of late years to limit the increase of their stock by free sales, to buy and fence in large tracts of land, or to move their stocks farther west. Even where the latter alternative has been adopted, many have concluded that in the march of progress they will again be interfered with, and are adopting the plan of leasing land in large bodies from the railroad companies for a term of years. By this means, at a small expenditure of cash annually, they control their own ranges, and are not likely to be interfered with soon. The current price of rental of these wild grazing lands is about two cents per acre annually, or say \$12.80 for a section (one mile square).

It is not deemed worth while to encumber this publication with individual instances of successful cattle raising in Texas. They could be counted by thousands, and some of them upon a grand scale, like that of Captain Richard King, of Santa Gertrudes, about thirty-five miles southwest of Corpus Christi, in Nueces county, who coming to this country a poor cabin boy, something over twenty years ago, is now the possessor of an enormous estate, consisting partly of sixty thousand acres of land under fence, about 50,000 horned cattle, 10,000 horses, 20,000 sheep, 3,000 goats, etc., etc.

The following tabulated statement showing the increase from 100 cows, 2 bulls, and 100

calves, has stood the test of time, and we believe will be rather under than over the mark, always assuming that the business is managed industriously and with good judgment.

A TABLE

SHOWING THE INCREASE FROM 100 COWS, 2 BULLS, AND*
100 CALVES, FOR A PERIOD OF TWELVE YEARS.

	Cows.	Bulls.	Calves.	Yearly.	Two Years old.	Three Years old.	Four Years old.	Five Years old.
1st Year	100	2	100					
2d "	147	3	117	50				
3d "	204	5	163	57	50			
4th "	284	8	227	81	87	50		
5th "	395	11	316	113	81	57	50	
6th "	551	14	440	158	113	81	57	50
7th "	769	16	615	220	158	113	81	57
8th "	1,075	19	860	307	220	158	113	81
9th "	1,497	27	1,197	430	307	220	158	113
10th "	2,085	37	1,668	598	430	307	220	158
11th "	2,900	56	2,320	834	598	430	307	220
12th "	4,063	78	3,266	1,160	834	598	430	307
	5,684	110	4,349	1,633	1,160	834	598	430

Let us examine the above table carefully, and mark the result at the end of twelve years. The stock would be as follows:

Milch cows.....	5,684
Bulls.....	110
Calves.....	4,349
Yearlings.....	1,663
Two years old.....	1,160
Three years old.....	834
Four years old.....	598

14,368
Deduct 20 per cent. for casualties... 2,872

11,496
Deduct for strays..... 1,496

10,000

Now supposing that you should wish to settle up the business and realize, mark the results, notwithstanding the uncommon deductions I have made:

Sale of 50 five-year-old beeves at the end of the	
5th year, at \$10.....	\$500
" 57 " 6th ".....	570
" 81 " 7th ".....	810
" 113 " 8th ".....	1,130
" 158 " 9th ".....	1,580
" 220 " 10th ".....	2,200
" 307 " 11th ".....	3,070
" 430 " 12th ".....	4,300
" 10,000 head of stock cattle at \$5.....	50,000
	\$64,160

As regards imported cattle of the finer breeds, Jerseys, Alderneys, Durhams, etc., there has been a varied experience in Texas, the general opinion now being that the Durhams thrive best.

G. W. Elliott, of Mountain View, in the San Antonio *Express*, says of his experience with imported cattle: "I arrived here Dec. 3, 1878, with sixty-six head of Durham calves, from five to seven months old. I put them at once upon my pasture of 1,500 acres, which I had fenced several months previous, and had allowed no stock upon it. I fed them very little—a small amount of wheat bran once a day for a couple of months. On that, with the grass in the pasture, they went through the winter in very good condition; the only trouble was the Spanish fever, which they all

had sooner or later. I lost only six of the heifers out of fifty-seven, whilst I lost eight males out of nineteen head with that disease. I can only account for the discrepancy in number of deaths per sex in one way. The heifers are frequently thrown in contact with Texas cattle during the winter, by their being driven through the pasture the heifers occupied, while the males were isolated, being in a pasture to themselves. By the first of March all the heifers had gone through the disease, but none of the males had been attacked. In March I changed my males, when they were brought in contact with Texas stock, and in a short time all were sick, and I lost eight in a few days. Now, as to the causes of death among the Durham, Alderney, Jersey, or any other breed that are brought into this country, I feel confident, if there was no Spanish or native cattle here, that we would have but a very small death-rate from acclimation. I bred in June and July, 1879, twenty of my yearling heifers. Breeding them to the males that I brought with me, which were only year-olds past, the following spring I had twenty calves come from those heifers, and every one of them had disease at from fifteen to eighteen days old. I lost five of the calves with it. But I concluded to try it another season. So I bred twenty again—some that had calves, and some that had not been bred before. This spring they all brought calves that were as healthy and grew off as finely as I ever saw them do anywhere, not one of them showing any sign of trouble of any kind. They are about six months old now, and I believe I can show as good a lot of calves as you can find in any cattle growing country from the year-old cows, and with less expense than can be found anywhere outside of Texas. I would, therefore, advise those bringing stock from other parts to this country, not to breed them the first year. My cattle have not been housed a day since I came—have been at liberty in my pastures ever since here, and I find I have seen they have grown and lived upon the native grasses here just as well as in Missouri. I have fed them all \$50 worth of feed since I came. Last winter they went through the winter on grass in the pasture alone, and were in excellent condition this spring. I have lost but one in two years, and that was a calf of two months which died with blackleg. My stock are all Durham. I wean the calves at six months old, and continue to milk the cows until a few weeks before calving again."

As showing the cost and profit of keeping cattle in Texas, the *Henrietta Journal* says: "The cost of keeping cattle is about \$1.50 per head, or \$1,500 per thousand. Four men, with twelve to sixteen horses, will tend a herd of 1,500. The profits are as follows: Beeves per head, cost \$15; running expenses, \$1.50; sell at \$22, with a profit of 32 per cent. Profit on cows costing \$13.50 per head; cost of keeping, \$1.50—\$15. Increase of calves, 75 per cent.; worth \$5 per head. Net profit 23 per cent. On a mixed herd the beeves sold will pay expenses, and the increase will double itself in three years. A discount is made on a

herd of 10 per cent. for losses. The profit on a mixed herd is about 20 per cent. It says there is a total of cattle in the Panhandle country of about 129,000 head, and it is fair to calculate that the increase this year from the present herds will average not less than 50 per cent. of the entire number. This will give 50,000 calves; the number that will start this season from the Texas drive will be about 30,000 head, and from Colorado 20,000 head. This will leave in the Panhandle for next year's roundups, about 208,000 head, and yet this does not begin to fill up the country, as it is estimated that it will hold about a million head. The present average prices for mixed herds per head are: Texas stock, \$13.50; domestic stock, \$15; beeves alone, \$22."

But it is needless to enlarge upon this head. Texas and cattle raising, in the estimation of the outside world, are almost synonymous terms. There can be no failure, with ordinary intelligence and industry, to the man who has an inclination for the pursuit of this occupation, and who will exercise ordinary judgment in the choice of a location. Horace Greeley stated a literal truth when he said, "It costs no more to raise a four-year-old beef in Texas than it does a *hen* in Massachusetts."

SHEEP AND WOOL.

Next to cattle raising in value and importance in Texas, comes the wool-growing interest. The growth of this industry in the last decade, but more especially in the last five years, has been extraordinary, and it is yet in its infancy. In 1860 the United States census showed Texas to contain 753,363 sheep. Ten years later, in 1870, only 714,351, showing an actual decrease, which was no doubt owing to the war which raged for four years of that period, and the unsettled state of affairs for several years succeeding its cessation.

About 1870, however, commenced a revival in wool growing. Until now Texas stands *second* on the list of wool-producing States, being only outstripped by California.

The *Boston Commercial Bulletin* (an excellent authority) of recent date, says: "The United States census of 1880 will give statistics of the number of sheep in the whole country, but will afford means of comparison only with the same enumeration ten years ago; special returns to the *Bulletin* give the number of sheep in twelve States in 1879, compared with the previous year as follows:

STATES.	1879.	1878.
Ohio.....	4,267,261	3,909,604
Texas.....	4,509,840	3,688,702
Wisconsin.....	1,182,675	1,060,569
Michigan.....	1,772,312	1,670,790
Illinois.....	846,101	893,036
Alabama.....	104,166	189,907
Indiana.....	906,849	916,771
West Virginia.....	432,020	410,551
Minnesota.....	194,576	186,456
Nebraska.....	194,959	131,787
Iowa.....	301,752	288,228
North Carolina.....	582,405	525,613
Massachusetts.....	59,331	54,928
Total.....	15,344,311	13,926,942
Increase.....	1,417,369	

The total increase in the twelve States mentioned (exclusive of Texas) will be seen to be 596,231, and in Texas alone 821,138.

These figures indicate the extraordinary growth of the industry in the State. And yet the vast area of Texas, specially adapted to sheep raising, has hardly been touched, and its expansion and rapid growth is not likely to be checked within the next fifty years.

In treating this important subject, we can hardly do better than to use the facts collected by Mr. John L. Hayes, secretary of the National association of wool manufacturers, in his valuable pamphlet entitled "Sheep Husbandry in the South," published in 1878:—

The sheep husbandry of this State is so distinct in its character, from that pursued or feasible in the older States of the South, and is of such high importance, that it demands a separate consideration. The estimated number of sheep in this State, in January, 1878, was 3,674,700. It ranks at present as the third wool-producing State in the Union, although having but about a hundred thousand head less than Ohio, which has 3,783,000, and about half the number of California, which has 6,561,000 head.

In its adaptation for sheep husbandry on a large scale, Texas possesses decided advantages over our other Southern States, enormous ones over the Northern and Eastern States, and many over California and the trans-Missouri regions. The cheapness of land; its natural fertility; its genial climate and exemption from tempestuous weather, except in the northers, *whose severity is generally much exaggerated*; the absence of seasons of continuous drouth, owing to the influence of the Gulf before referred to; the possession of permanent winter grasses, making the pasturage perennial—are advantages which will make Texas one of the great wool-producing countries of the world. Dr. Randall said, in 1859, of regions of Texas which he had thoroughly studied:

"I do not entertain a particle of doubt that wool can be raised more cheaply in those regions than in any other portion of the globe, where good government prevails to make life tolerable and secure, and such property as sheep, safe from frequent and extensive depredations. In no such portion are lands furnishing perennial pasturage, or the use of such lands, so cheap. In none are general circumstances more favorable, the accidental and occasional disadvantages so few."

Upon its annexation to the United States, in 1845, Texas retained, as the most valuable, though then little appreciated relic of the former Mexican proprietors, scattered here and there, flocks of the so-called "native" sheep of Mexico, of which large flocks still abound in that country, and which still furnishes an easy supply of all that are needed. This race, greatly deteriorated by neglect, small in size, and bearing about two pounds of coarse wool, is supposed by many to be degenerated merinos. It is now well established that they are descendants from the *Chourro*

race of Spain, even at present distributed in all parts of that kingdom—a race distinguished for its robust temperament, the facility with which it is nourished, and its resistance to hunger and tempestuous seasons. When the animals are properly fed and bred, they may be made to produce a long and very white, though coarse wool, well adapted for carpets. This is the stock which was the original foundation of the present Texas flocks.

We regret that, with all our efforts, we have been unable to obtain condensed, original statements in regard to the sheep husbandry of Texas, like those so kindly furnished us by Mr. Peters and Colonel Watts in relation to Georgia and South Carolina. In their absence, we must content ourselves with giving extracts from the Texas correspondents with the Department of Agriculture. Although fragmentary in their character, they will perhaps present a more exact picture of the general sheep husbandry of the State than could be given by more elaborate and better arranged statements.

We give the extracts at hazard, and without reference to the geographical position of the counties, or their bearing upon any particular question in sheep husbandry. In order to preserve the piquancy of the statements, the exact language of the correspondents is given in all cases. The correspondents, it will be remembered, are selected by the department from the most intelligent agriculturists residing in the several counties.

A correspondent from Palo Pinto county writes:

"A sheep-raiser for several years says: 'Say for 1,000 head, it will cost \$300 for herding; extra help in lambing time, \$30; salt, \$15; cost of shearing, \$50; feed during winter, \$200. We imagine the Georgia Bureau of Agriculture knows but little about large herds of sheep, as they are grown on prairie grass. They are accustomed to herds of from ten to one hundred. Such flocks are not necessary to be herded, and yield a fine profit. If we make it a specialty, and put 500 to 1,000 in a herd, which is common here, they will not pay so well. The figures made on paper will show them to pay better than anything else. But a very little experience show the figures quite an error. Small herds here will pay very well, and much better than large, when they are so large as to require a herder."

Navarro County.—"I have been engaged," says the correspondent, "in sheep-raising for fourteen years. In this and all the old settled prairie counties, 300 to 400 sheep do well. 100 per cent. gross profit is a fair statement. The profit diminishes 10 per cent. per 100 head, as you go over 100. My flock has ranged from 300 to 1,000. I put up annually 100 pounds of prairie hay and one bushel of cotton seed to the sheep, and have good shelter provided."

Goliad County.—This correspondent, Hon. Prior Lea, the writer has the pleasure of knowing personally to be entitled to great confidence. "Cost and profit of growing wool may be estimated in two ways. Credit—

ing increase of sheep as equal to all cost, the wool would be net profit; and this, at least, is claimed by many persons. Without crediting increase for more than enough to maintain the flock equal to its primitive condition, a practical estimate for cost, considering every kind of item, might be from 10 to 12 cents per pound of unwashed wool, averaging 17 cents in market. This latter mode gives broad margin for contingencies."

Bandera County.—"Cost of keeping sheep, about 25 cents per head; profit, 30 cents to \$1, exclusive of increase."

Another, same county.—"One flock of 800 cost, for the shepherd and salt, \$275; net profit including wool and increase, \$1 per cent."

Aransas County.—"Cost of keep, 10 per cent.; profit, 50 to 60 per cent. on capital. Mr. P's flock averages 50 per cent. of its total value as profit. About 100,000 sheep in the county, mostly improved merinos."

Burnet County.—"One-half in farms under cultivation; all the rest a complete pasture. Sheep-raisers say this is the best county they ever saw."

Callahan County.—"Flock of 2,000. Twenty cents per head cost. Profit by wool, 40 cents per head."

Fort Bend County.—"250,000 sheep could be raised in this county. One-quarter in cultivation. All the rest adapted for sheep pasture, yet no sheep worth mentioning; all cattle and cotton. At close of war, sheep-raising began to decline, owing to depreciation of price of wool. A reaction has now taken place; extensive pastures are now being enclosed; improved breeds are introduced."

Kendall County.—"Mr. B. has 1,000 head of sheep. Shears 5,000 pounds of wool; at 28 cents, \$1,400; cost of keep, \$325; profit, \$1,075."

Another; same county.—"A successful sheep-raiser says: 'I commenced with 220 ewes, three years ago, and have sold sufficient of the flock to make an increase of 100 per cent. per year average; and the wool has averaged for that time from 75 cents to \$1 annually.'"

Lavaca County.—"Mr. S. B. M. has a flock of 1,500 head, let out to a herder on shares; and, therefore, furnishes a pretty fair sample as to profits. He gives the herder one-quarter of the wool and one-quarter of the annual increase, that is, the actual increase. He furnishes the salt, sheep dip, etc. The herder pays all other expenses, except shearing; and pays one quarter of this amount. This makes the yield to the owner—

For wool.....	\$800 00
The increase of the flock will average 800 head; which, at \$1.50 per lamb, in spring, makes lambs.....	\$1,200 00
Deduct from this \$1,200, $\frac{1}{4}$ to herder,.....	300 00
which leaves.....	900 00
Leaving a balance as net profit, on one flock, of.....	\$1,700 00
or about \$1.13 per head on the entire flock."	

Nueces County.—There are several reports

from this, the leading wool-producing county in the State.

One correspondent says: "Sheep husbandry is the leading industry; and a higher degree of intelligence is devoted to it than to any other enterprise in the county."

Another says: "I would estimate the cost of keep and profits on the sheep (Spanish merino) as follows:

1 two-year-old ewe cost \$5 00.	
<i>Dr.</i>	
To interest, one year at 12 per cent.....	\$0 60
" cost of feed, herding, salt, etc.....	1 00
" Buck service.....	40
" Insurance.....	10
" Shrinkage in value.....	70
Total.....	\$2 80
<i>Cr.</i>	
By 5½ lbs. of wool, at 20 cents.....	\$1 10
" 75 per cent. of lambs, at \$4.00.....	3 00
Total.....	\$4 10
Less cost of keep.....	2 80
	\$1 30
Per cent. of profit, 25.	

"My own flock, now numbering 1,700, started 460 in 1873 (merinos and Cotswold grade), has paid above per cent. of profit, or more."

Another careful correspondent from the county of Nueces says: "Rams have been imported in large numbers. Improvement is already far advanced. Flocks are sheltered from Nov. 15th to Feb. 1st, by selecting their range and night camp on the south side of some creek or prairie timber. There is no foot-rot. Semi-annual lambing is generally adopted in this county; the February or spring crop being always the most preferable. One set of ewes, lamb in the spring, and another set in the fall. Those who shear the best and most desirable clips of wool handle their sheep in moderately large flocks of 1,000 to 1,200 head. Provision is only made for select sheep—such as rams. Average weight of fleece, five pounds. Average cost of keeping, 25 to 28 cents. Profit, 72 to 75 cents. Where dipping has to be added, the general expenses will be 3 to 4 cents per head. Good tobacco, liberally used, invariably cures the scab; all other preparations have failed in this county. Profits on wool only given, as profits from increase are rarely turned into cash. Ewe lambs of high grade sell readily for \$2.50 to \$4.00 per head. The cost of keeping, where the shepherd cares for only 1,000 sheep, is the cost given; where he cares for 1,500 to 2,000, as many do the year round, the real cost is proportionably less."

The number of sheep in this county, according to the returns of assessors, is 656,000; and the remarkable fact is presented to us, that very nearly the most southerly county of the whole United States is the banner sheep county of the Union. The adjoining county, Starr, has 184,000 sheep. And these two counties have more sheep than the four States of the South—Georgia, South Carolina, Florida, and Louisiana together; or the conjoined States of the North—New Hampshire, Ver

mont, Massachusetts, and Rhode Island.

One of our own correspondents, certified to as one of the oldest and best citizens of Texas, writes us as follows:

"WACO, McLELLAN CO., TEXAS, Jan. 12, 1878.

"SIR:—I have been directly or indirectly interested in the wool-growing, in this state and section, for many years. The country is rolling prairie land; the soil, black-waxy, and, in sections, quite sandy, and an excellent grazing country. The natural grasses are the sedge and mesquite; of the latter, three varieties; the best, the bearded variety. My flocks have been French and Spanish merinos, mixed; the average product of fleece being six pounds, at an average valuation, for five years, of 25 cts. per pound. This can be produced under favorable circumstances for sixteen cents net cost to the shepherd; but he should have not less than the ten cents profit added, to make a paying investment. If there is no change in our duties, I am confident that there is no more promising industry in the country than wool-growing; but, if we are to have reduced duties, or free wools, the occupation will have to be abandoned.

"There is no objection to sheep from any section of the North or West, if free from disease. For the ordinary wools I would prefer the merino; for mutton or combing wools, a cross of the Cotswold with pure blood merinos. The country is uniformly healthy for sheep here. In three months of the winter, the sheep should have some feed; say one-third of their consumption. I would say that sixty-five cents a head would cover every possible contingency or cost in sheep husbandry, per annum, in this section. As I have said, if the farmers are to keep the protection they now have against the producers of foreign wools, there is no more profitable industry that any one who will put his attention to the business can be engaged in.

"Yours truly, "W. R. KELLUM.

Another of our own correspondents writes as follows:

"HOUSTON, TEXAS, Jan. 9, 1878.

DEAR SIR:—I have had long experience in sheep husbandry in the San Joaquin and Santa Barbara country, and also in Los Angeles, California. I know well Colonel Hollister, Mr. Dibbles, of California, and other prominent wool growers there. I was also for a time in Utah; also, in Western Texas, which I regard as the best country for the industry with which I am acquainted, if life and property were only secure against Mexican depredations. The climate, for man and beast, is unrivalled; the feed, rich and unailing all the year round. No country I know of could so well sustain the large flocks which, from various causes, are being broken up in California.

"In a parallel drawn north from Laredo to the Indian Territory, there is the best location for the industry, in my judgment, in the

* There is no longer any complaint on this score. Flocks on the Mexican border are now as safe as they are anywhere. The Mexican and Indian troubles are "dead issues."—ED.

country. But, until Uncle Sam will protect us there, the life of the shepherd and his flocks are in constant jeopardy from the Mexicans.* These thieves and marauders operate in a regularly systematic way; being fitted out and encouraged by the wealthy Mexicans living on or near the border, who for years have been at the bottom of all the border troubles, from their desire for annexation to this country. Their purpose is constantly to provoke a war, believing the result will be annexation, when they will then have a stable government, which they know they never will have under any Mexican leader.

"There are other very fine fields for this industry near Corpus Christi, San Antonio, north and south of Dallas; but the finest section in this country, in my judgment, must remain idle, unless, as I have said, the government will give protection.

"S. W. PIPKIN."

Statements of Mr. Shaeffer.—After the above notes had been put in press, the writer enjoyed the privilege of several personal interviews at Washington with Mr. F. W. Shaeffer, of San Diego, Duval county, Texas, commended by members of the delegation in Congress from Texas, as the highest authority on sheep-growing in that State. The following notes which this gentleman permitted us to take at these interviews, will serve to give a much more exact idea of the present condition and resources for sheep husbandry in Texas, than the notes before given.

Our informant, born in Ohio, was early in life engaged in mercantile pursuits in the city of New York. Finding them uncongenial, he embarked in sheep husbandry in Texas, about the year 1857, settling in the higher region of the State, north of San Antonio. The foundation of his flocks, which now number 15,000 head, was sheep purchased before the war from a brother of General Beauregard, supplemented since the war by 1,500 breeding ewes, obtained from the estates of G. W. Kendall, identified with the introduction of improved sheep husbandry in Texas.

Finding the climate in the high region where he was first established not as mild as he desired, he purchased lands in the more southerly regions of the State, about fifty miles from Corpus Christi, in Nueces county, obtaining gradually about 80,000 acres; the whole of this great tract being enclosed in one vast pasture by a wire fence, which cost upwards of \$ 6,000. Here he found the climate so mild that the sheep thrive absolutely without shelter. He regards it as necessary only to keep the sheep fat and in good condition, to enable them to resist without inconvenience the cold wind and rain of that climate. Even the shepherds have no shelter, except such as they may make with their blankets; and no means of warming themselves, but a fire on the open ground. They suffer no inconvenience, however, from this exposure, and are always on hand to take care of their sleep.

The sheep in this district are divided into single flocks of from 1,000 to 1,300 in number;

usually about 1,100, this being about the number which can be advantageously kept together under the care of one shepherd. The ewes, with their lambs, are kept separate from the dry ewes and the wethers—or *muttons* as they are generally called. A thousand or eleven hundred sheep will “herd” or keep nearly together* within a space which the shepherd can easily move around. When driven out on the range from the camping-ground, they are kept constantly moving for a mile or two; the shepherd continually moving around the flock, which is guided by his voice. They snatch their bites of grass as they go slowly along. They return in the same way, slowly feeding, to the camping ground, generally selected on the southerly side of some creek, or under the shelter of the prairie-timber. In rainy or cold weather the sheep travel much more briskly than in warm. In very hot, dry weather, they often will not feed by day, making up for it by feeding late in the night. Thoroughbred shepherd dogs have been hired, but have been found useless, except to relieve lazy shepherds, who can do the necessary guiding much better than the dog. The flocks, however, are usually attended by cur dogs, which are useful for frightening away wild animals. These curs, having been suckled when young upon goats, continue to attach themselves to the flock. The shepherd dogs were discarded, because it was found that, when they drove the sheep, they caused them to huddle together, thus making a great loss of feeding time. It is of the first importance to keep the animal fat. Its fat condition not only makes the fibre strong, but enables the sheep to resist the storms and cold. If sheep are fat, they are also better able to endure occasional drouths. All the sustenance in the country in question is supplied by the natural pasture, which consists of different varieties of the mesquite grass. A great superiority of these grasses over the annual grasses of California consists in their being perennial, and having long and stout roots, which cannot be pulled up by the sheep, nor trodden down. Although the grass may be apparently dry during a drouth, after a rain it becomes perfectly green in a week or ten days. The rams, it may be observed, except when they range with the ewes, are confined in enclosed pastures. They receive in winter extra forage; either cotton-seed (which is considered more nourishing than grain), or, more generally, oats. A new variety of oats has recently been grown in Texas, called the “Anti-rust.” This variety has been known to produce as high as one hundred bushels to the acre, weighing 37

pounds to the bushel, instead of 32. Through its introduction the price of oats has been reduced from about 70 or 75 cents to 22 cents. It is sown in November, and fed during the winter, which increases the crop of grain. This variety would be admirably adapted to the Georgia pine lands for a winter forage for sheep.

Although the original stock upon which Mr. Shaeffer's flocks were engrafted was principally the native Mexican sheep, improved by merino bucks, the Mexican blood has been so completely eradicated as to show no trace of its existence. The native Mexicans would weigh scarcely more than from fifty to fifty-five pounds, gross weight, and produce fleeces of poor wool, weighing about four pounds. The improved sheep of Mr. Shaeffer, average for the whole flock seven pounds of unwashed fine wool. His wethers—or “muttons,” to adopt the Texas term—will weigh, at four years old, one hundred pounds, gross weight.

These sheep, which are of the best improved American merino stock, make excellent mutton. The mutton fed upon the mesquite grass never has any of the rankness or *muttony* flavor peculiar to those sheep at the North. A great number are now sent from Nueces and other counties in Texas to St. Louis and Chicago, where they bring good prices. They reach these markets before the Western sheep are sheared and ready for the butcher; and they form an important source of supply for these markets in the spring, coming in like the Southern vegetables to our Northern markets. A notice has recently been published of the loading of ten double-decked cars carrying 160 animals each, with sheep, at San Antonio, destined for the Chicago market, at a distance of 1,500 miles. One flock of three-year-old wethers was sold by Mr. Shaeffer for \$3 a head, to a party who pastured them for two years in Texas, receiving their wool for this period; and who sent them to market in New Orleans, at five years old, where their fatness and the excellence of their meat was the subject of general comment. Mr. Webster used often to say, at his dinner table, that he never knew the secret of making good mutton until he visited England, where he found that it was *age*, the best mutton being five years old. While the sheep increase but little in weight after the third year, the meat constantly improves in quality. It may be readily seen how easy it is to obtain good mutton where the food costs absolutely nothing, and almost the only cost of keeping the sheep till full maturity, is the interest of the capital, while the sheep are all the time producing their semi-annual returns of wool.

“The flocks in this country are kept up by the constant purchase of regenerators. These are the rams raised in New York, Vermont and Ohio, by skilled breeders, who find this much more profitable than growing large numbers of sheep for wool or mutton. A very large number of Northern rams are sold in Texas. Mr. Shaeffer has himself purchased over 800 at the North, many of them from Dr. Randall. There are at present five hun-

* Mr. Shaeffer gives a satisfactory reason for the fact, often stated without explanation, that the English races of sheep, the Cotswolds, Leicesters, etc., cannot be kept in large flocks. The reason he gives is, that the Cotswold will not “herd” or keep together, like the merinos. While feeding, they invariably scatter over a wide domain. A Cotswold, if tired, will lie down and cannot be driven up by the shepherd; and, when it recovers, is liable to wander off and join another flock. Mr. Shaeffer thinks that the Cotswold blood should never be introduced into large flocks of merino sheep. Without greater care in breeding than the ordinary flocking-master can exercise, they will make the wool of the flocks uneven, and ultimately ruin them.

dred rams in Corpus Christi, all which will be sold at prices ranging from \$30 to \$50, and very choice animals for \$100. The Texas sheep husbandry is thus the means of keeping up the most profitable branch of sheep culture at the North—a branch which may be carried on upon the highest-priced lands. The high-priced rams are kept in Texas two or three years, and sold at a less price to persons commencing the sheep business with but little capital.

"It had been the custom for the Texan flock-masters to sell the high-bred rams produced from their own flocks only at the high prices demanded by the Northern breeders. Mr. Shaeffer early saw that he could benefit his country better, and do as well for himself, by changing this system. He found that the young men of his country going into the sheep business could not pay these high prices and make a living. He therefore reduced the prices of the high-bred rams which he had raised in Texas to from five to ten dollars, and sold a great many more by so doing. This had the effect of greatly extending the improvement of the flocks in the country. Another step taken by him was important for the development of the country in the direction of sheep-growing. Mr. Shaeffer found that contests were constantly occurring between the cattle-herders and the shepherds. He therefore began gradually to purchase all the lands he required; his example was followed by others; and, at present, the greater part of the land in the sheep-region is held in freehold by the respective flock-masters.

"There has now been so long and extensive an experience in this country as to reduce the methods of the peculiar pastoral sheep-husbandry to a well-established system, which is so simple that it may be easily learned by any intelligent person. The plant required for the business, except the first stock of ewes and rams, is exceedingly small. No buildings are required, if we except the covered platform for shearing. A rude camp is all that is necessary for the flock-master, and a wagon with a pair of horses for his supplies; of course he will have a saddle horse. The well-arranged *ranche* is an utter luxury, to be earned by the profits of the enterprise. The aim is to have flocks of at least 1,000 or 1,100 head, for each of which one shepherd—invariably a native Mexican, called a *pastore*—is required. It is desirable that the proprietor should have at least three flocks of this number. The separate flocks, each with its shepherd, are so located that they can be brought at night to a central camp, where the *bacciero*, or sheep-overseer, also a native Mexican, is established. This overseer is necessary, in all cases, to relieve the shepherds in case of accident, and to cook their rations. The *baccieros*, as a class, are remarkable for their fidelity. The *impediments* of the camp, if they may be called by this name, consist only of the rudest cooking utensils, and the stores of provisions, no shelter being required, and the bed of the shepherd being a sheepskin. The food or rations of the shepherd are corn for *tortillas*, or some-

times, flour, coffee and fresh meat, no pork or bacon being used. The fresh meat is almost invariably supplied by goats, which are pastured with the sheep for this purpose. They cost about a dollar a head. Their flesh is excellent, and preferred by the Mexicans to any other. The quantity of goat's meat which the *pastore* will consume is enormous; the consumption being about one goat a week to the shepherd.

"The shearing seasons are the busiest times for the Texan flock-master, not only on account of the number of extra hands to be overlooked, but because upon the care exercised at these periods in culling, depends the future character of the flocks; and the tying up of the wool nicely is important for its sale. The shearings take place twice a year. The spring shearing commences about April 15th, and the fall shearing about September 15th. The shearings continue from three to four weeks, according to the weather. The practice of two shearings a year has been adopted, from the experience that it is most advantageous for the warm climate of Texas. It has been a mooted question, whether there is more profit in shearing twice a year than once. By shearing twice, the wool, of course, is shorter; is fitted for only one purpose—that of clothing, and brings a less price per pound. The high prices of wools for combing purposes, for which many of the improved wools of Texas, if suffered to grow to their full length, are well adapted, is lost; and there is the additional expense of the extra shearing. But, on the other hand, the sheep sheared twice a year are healthier, and keep fatter; and the shearing checks the scab, if there is any tendency to this disease. The flock-master gets the money for his wool twice a year, instead of once; an important consideration where the least rate of interest is one per cent. a month. The double shearing is especially advantageous to the lambs. By giving them their first shearing in August, to be repeated in the next spring, their health and growth are greatly promoted, and, consequently, the general increase of the flock. Mr. Shaeffer believes it would be advantageous to shear the *lambs* twice, even at the North. Seeing the lambs in the flock of an eminent breeder in Missouri failing, Mr. Schaeffer recommended immediate shearing. The advice was followed and all were saved; one of these lambs, (a ram) when grown, was afterwards sold for \$150.

The shearing in Texas is all performed by Mexicans, from both sides of the river Rio Grande; many coming in, for this purpose, even from as far as Monterey. They shear by the head; the usual price being about \$3.50 per hundred for fine sheep. The shearers average about thirty head a day. The shearing is performed on a floor or platform, especially constructed for this purpose. The most careful flock-masters have this floor protected by a roof. The barn floors of the North, it must be remembered, are not known in Texas. In shearing, the Mexicans tie down the sheep upon the floor, usually about ten at a time. This time the flock-master improves for ex-

All the ewes which lose their lambs from any cause are turned in with bucks, by the first of June, to lamb in November.

Total number, March, 1880. 9,280

Advice to Immigrants.—The adventurer from a distance, seeking to invest in sheep husbandry in Texas, is advised to proceed directly either to Corpus Christi or San Antonio, from each of which points he can make observations with convenience, and obtain information as to desirable locations. He should spend three or four months looking around

for a range. The ewes may be carried from the West or bought in Texas. Mexican ewes can be purchased at 75 cents per head, and improved sheep for from \$1.00 to \$4.00. Texas-raised rams can be bought for \$10, and imported rams for from \$30 to \$50. It would be more safe to rent a tract of land, which he can probably obtain at a very cheap rate—say \$100 per year for enough land to feed two flocks of sheep of 1,100 each. As he may not like the business or the locality, it would be more prudent, at first, not to purchase a range. If he is willing to incur greater risks, to secure the proprietorship of an extensive range at a moderate price, he may go higher into the country, where the land belongs to the State. A 640-acre certificate of State land can be bought for about \$640, or a certificate of the alternate lands granted to railroads as low as \$100.* Generally, the expense to secure a patent, including certificate and cost of surveying, would amount to about fifty cents to the acre. As two acres are required for a sheep, it will be seen, from the statement of increase before given, that the command of a very broad range is required to make the increase available; and that, with such a command, there are chances for very large profits. The adventurer, if he has a family, should place them in some of the towns or villages most convenient to his range. His personal presence on his range will be indispensable for his success, and he will find ample occupation. But he can safely trust the Mexican *bacchieros*, when making occasional visits to his family.

The advantages of Texas for sheep-growing are now attracting persons of experience in Australia, and English and Scotch emigrants with capital. Besides our informant with his 15,000 sheep, there are others in Nueces and Duval counties with flocks of ten to twenty thousand head: The Callahan flocks, in Starr county—the proprietor living at Laredo—number 60,000 head. When we see how rapid the increase is, and that there are 80,000,000 acres of land still unlocated in Texas, we can see that, if there is no legislation to disturb the wool business of the country, and the Mexican and the Indian depredations are checked, it will not be many years before Texas will rival Australia. Mr. Shaeffer states, as an illustration of the rapidity with which sheep husbandry is advancing in this State, that in 1876 San Antonio received but 600,000 pounds of wool, which is sent through Galveston. In 1877 she received 2,000,000 pounds. The wool of Nueces and neighboring counties is shipped from Corpus Christi. In 1866 there were shipped only 600,000 pounds. This year there will be shipped 6,500,000 pounds.

The following statement, illustrative of the profits which may be derived from sheep-growing in Texas, was made to us by Colonel John S. Ford, a State senator, and formerly a member of the Congress of Texas, before annexation. We give it exactly in the language of Col. Ford, as noted by us and subsequently read to him:

* Now about half that sum.

"Dr. Thomas Kearney, formerly collector of customs of the port of Corpus Christi, and Major James Carr, made, in 1870 or 1872, an investment of \$5,000 in sheep husbandry; bought ranch and buildings about sixty miles northwest from Laredo, Webb county, Texas,—the land about 13,000 acres, and the sheep well improved. At the end of five years Dr. Kearney sold out his interest to Carr—that is, one-half interest for \$20,000. In August, 1877, Carr refused a \$60,000 offer, which he had from William Votaus, for his sheep ranch with the sheep; the exact facts being that Votaus offered \$30,000 in cash, and one of the best improved places on the San Antonio River, which had cost him about \$60,000."

Mr. Shaeffer says that Carr ought to have taken the offer.

To Texas, more than any other State, do the textile manufacturers of the North look for the supply of their mills. No other State is making such rapid progress in population, production and wealth. With an area which exceeds that of the German Empire by about sixty thousand miles: with a capacity to produce almost all the products of the temperate zone; with sugar lands on the Southern border which could yield double the quantity of sugar and molasses required for our whole consumption, Texas is above all pre-eminent for its resources in textile material. On less than one-half of one per cent. of its area, it produced, in 1875, one-half of all the cotton consumed in the United States, and four per cent. of its area would be capable of producing all the cotton now consumed in Europe and the United States—over six million bales.* Add to this its capacity for wool production, and we have a State without parallel in the extent of its natural resources.

On the first of January, 1878, the number of sheep were as follows, according to the Department of Agriculture:—

NUMBER OF SHEEP IN SOUTHERN STATES,
JANUARY, 1878.

STATES.	No. of Sheep.
Delaware	35,000
Maryland	151,300
Virginia	422,000
North Carolina	490,000
South Carolina	175,000
Georgia	382,300
Florida	56,500
Alabama	270,000
Mississippi	250,000
Louisiana	125,000
Texas	3,674,700
Arkansas	285,000
Tennessee	850,000
West Virginia	549,900
Kentucky	900,000
Missouri	1,271,000

Total 9,887,600

* Report of Mr. Edward Atkinson, on cotton, at the International Exhibition.

NUMBER OF SHEEP IN NORTHERN AND WESTERN STATES, JAN. 1878.

STATES.	No. of Sheep.
Maine.....	525,800
New Hampshire.....	239,900
Vermont.....	461,400
Massachusetts.....	60,300
Rhode Island.....	24,500
Connecticut.....	92,500
New York.....	1,518,100
New Jersey.....	128,200
Pennsylvania.....	1,607,600
Ohio.....	3,783,000
Michigan.....	1,750,000
Indiana.....	1,092,700
Illinois.....	1,258,500
Wisconsin.....	1,323,700
Minnesota.....	300,000
Iowa.....	560,000
Kansas.....	156,000
Nebraska.....	62,400
California.....	6,561,000
Oregon.....	1,074,600
Nevada.....	72,000
Colorado.....	600,000
The Territories.....	2,600,000
Total.....	25,852,300

As example is better than precept, we give some examples of fortunes made in Texas in the sheep business. The following is from the *Galveston News*, special edition for September 1, 1880:

"It may please those of your readers interested in sheep matters, to learn a few facts about the Las Moras rancho, in Menard county, started on a comparatively extensive scale three or four years ago, by Mr. C., a French capitalist.

"After an examination of the frontier, he pitched upon the waters of the upper San Saba as offering rare advantages for range and water. He at once, by judicious purchases, secured valuable water privileges, and moved some six thousand sheep, including some forty-five hundred ewes, up there, built large and substantial buildings, farms and pastures, and gave the business the closest attention.

The result demonstrates the advantages of Western Texas for this fast growing industry; and shows what pluck and intelligence, combined with capital, can in a short time achieve.

"After grading up his original stock with the greatest care, he now has some 15,000 sheep, including some 400 lambs, all in the finest condition, while his clip for this spring runs over 50,000 pounds, and ranks among the very finest in the State for quality.

"It is rumored that he is so much encouraged that he has secured the co-operation of active gentlemen and capital, both in this State and abroad, with a view of extending the business and adding cattle-raising to it.

"With a few more such men among us, Texas will, in a few years, astonish the world by the magnitude of her sheep interests, as she has already done with her cattle and cotton.

"The above is but one of many hundreds of similar instances in Texas that might be cited. In three or four years Mr. C.'s flocks have increased 250 per cent., and probably much more than that in value per head, through grading up. He is, therefore, probably about

500 per cent. better off than he was when he started the business, three or four years ago. When it is considered how rapidly sheep increase, and that the cost of keeping them in Texas is next to nothing, outside of the hire of herders, such results are not surprising. There is no business in which fortunes may be more certainly or rapidly made, and all West Texas has many living proofs of it. During the late war the writer's nearest neighbor, in a West Texas county, was a sheepman, who owned a flock of a thousand head at the beginning of the war, and nothing else whatever, except a horse or two. He had not a foot of land, or a house to cover his head, but rented a small tract with a shanty on it. There was no accessible market for his wool in those days, so he was compelled to keep his clips on hand. He was very hard up, and waxed very ragged; but what with wild venison, wild turkey and wild trout, with an occasional wether and plenty of corn bread, he managed to keep himself fat and healthy. When the war closed he had his clips of five years, and in the meantime his flocks had increased to some nine thousand head. He waked up one morning and found himself rolling in wealth. He sold his fine wool at a high figure, put on broadcloth and silks, visited the cities, turned fool, concluded that he had mistaken his business, sold his fine flocks at a high figure, started life afresh as a big merchant in a big city, and in a short time 'busted'—busted all to pieces, without a copper left to him in the world. Truly the fool and his sheep are easily parted.

"Another one of the writer's neighbors grew into sudden wealth in the same way. But he did not turn fool and turn merchant. He held on to his sheep, and died a short time ago a very rich man, owning a large real estate. The sheep, under his excellent management, did it all for him.

"But this business, like any other, requires very close attention to turn out these fine results. Without this sort of attention, close and intelligent, there is no money in it.

"N. A. T."

The *News* of a later date has the following from a San Antonio correspondent:

"Mr. L. McKenzie, born and raised in Texas, and now thirty-five years old, began the sheep business in Maverick county, Aug. 1, 1875. He had \$740, for which he bought 500 head of Mexican ewes. He immediately procured the best merino bucks attainable, and commenced grading his flock. His first year's yield of wool was 1,000 pounds, pure Mexican, for which he received 12½¢ per pound, or \$125. This, of course, was not enough to keep his herder, but he had credit and was economical. In his second year he had a large number of half-breed sheep, and an increased quantity of wool of an improved quality. This has been continued to the present time, during which he has maintained a family and schooled four children. He has just disposed of his fall clip in this city, and the following is the result of five years in the sheep business:

"Last spring Mr. McKenzie sold his wool at $21\frac{1}{2}$ ¢. per pound, amounting to \$1,560, and the sale of his fall clip just made, which amounted to more wool, brought only $20\frac{1}{2}$ ¢. per pound, and netted \$1,287. A short time ago he sold 1,000 old ewes, muttons, etc., at \$1.50 per head, aggregating \$1,500. Total amount of wool sold in 1880, \$4,347; including the sheep, \$5,847.

"During these five years Mr. McKenzie, by close attention to his herds, and always on the alert to take advantage of any trade or business transaction that presented itself, has accumulated property as follows, and on which he does not owe a dollar: Rancho of 2,560 acres of fine land on Palo Blanco, Zavalla county, house, pens, etc., valued at \$4,840; 3,300 improved sheep at \$2, \$6,600; 400 head of cattle at \$10, \$4,000; ten head saddle horses and saddles at \$25, \$250; 500 goats at \$1.50, \$750; making a grand total as the result of five years' business, adding this year's sales, of \$20,787.

"He has now ten men in his employ, all of whom are Mexicans. His sheep-herders he pays \$12 per month, gives them a bushel of corn meal, two goats for meat, 50 cents worth each of sugar and coffee, and 25 cents worth of salt per month. This, a blanket, a sheath-knife, probably an antique gun, a faithful dog for watching, not herding, is the simple-hearted Mexican pastora's (shepherd's) outfit. He has no tent or hut, and sleeps with the sheep wherever night overtakes him. Over every three or four pastures is a corporal or overseer, who is required to keep track of the herders' whereabouts, and see that their wants are supplied. There is usually an overseer of the entire rancho, who, next to the proprietor, has charge of the business of the rancho. These pastoras are usually very faithful, and are preferred by those who have become accustomed to them to any other nationality. Mr. McKenzie tells of a man, about forty years old, who has worked for him over four years, and who declares that he will stay with him always. He has been born and raised at the business, and never got more than five dollars per month till he came to Texas and worked for McKenzie. The old man gets a furlough of a few days every six months, when he goes to Eagle Pass, spends all the money due him and what he can get advanced, amounting to about six months' wages, in drinking, gambling and having lots of fun, according to his idea of the thing, and then returns to his flock perfectly contented for the next six months. Last year, with the assistance of his faithful dog, he killed over 100 wild-cats and panthers. Herding with these men is a life-time occupation; they have no hope or wish to do or attain anything better, and they acquire a wonderful proficiency. Mr. McKenzie says that the man Pancho, referred to, has the wonderful faculty of knowing every sheep in his flock. Last spring, when his goats had kids, he had to stake out each kid for several days, because they will not follow the dam when very young. He had thus over 150 kids tied to stakes, and when the hot sun came out he

untied each one of them, carried them to the shade in the sheds, and in the evening returned each to its proper stake. This feat was witnessed by Mr. McKenzie, who knew that each kid was at its proper place, because the mother does not only know its young, but returns to the stake where it was left, and not finding its own offspring refuses to accept a substitute. Not a single instance of refusal occurred; the old Mexican had properly returned each kid to its stake.

"Probably few men in West Texas can show a better record than Mr. McKenzie, and while not every man has his good fortune, in the five years he never having met a single disaster, still the sheep business now offers greater attractions than any other in Texas. The opportunities are not all gone, and, in fact, sheep husbandry in Texas is only in its infancy. Many improvements have been introduced within the past two or three years, and there is room for many more. Lands are plenty yet, and all it needs is a thorough knowledge of the business and close attention.

"HANS MICKLE."

We cannot better conclude this article (already extended) than by the reproduction of the following letter from Mr. H. J. Chamberlin, of Bell county (Central), Texas, a man of great experience and success in sheep culture in his section, where more attention is paid to the improvement of the flocks by judicious breeding and careful handling than on the western or southwestern frontier.

(From *Burke's Texas Almanac*, 1880.)

"In again attempting to furnish an article for the *Texas Almanac* on the subject of wool growing, I am made to look back over a period of nineteen years, when I first engaged in this vocation on Texas soil. Then a few stationary herds, mostly of the Mexican stock, made up the sum total of a seemingly insignificant business. Texas is now regarded as the second largest wool-growing State in the Union, having nearly or about four millions of sheep, and perhaps before another issue of the *Almanac*, Texas will rank first in the production of this great staple in the world.

"Not only has it been proven that Texas is to lead in the quantity of sheep and wool grown, but also in the raising of superior thorough-bred animals, possessing individual merit, surpassing any on the face of the globe for weight of fleece and other desirable qualities.

"The hap-hazard, slipshod, penny-wise and-pound-foolish methods of raising sheep in Texas have yielded to skillful breeders of the very best animals and producers of wool, who know to a certainty that their flocks, bred to thoroughbred stock, possessing requisite wool growing qualities and vigor of constitution, are to them more valuable than mines of gold, and the care of them as pleasant and healthy as any vocation they could undertake.

"About all of the popular breeds of sheep known are successfully grown in Texas. The nature of the large, long-woolled breeds, to

gether with the great distance from our mutton markets, has caused them to be but little grown. Some persons have been prejudiced against Merinos by the use of, or attempt to breed, sheep brought into the State and called thoroughbred animals, that were bad grades, not possessing either constitution or other merits; also, by the purchase of stock in such a pampered condition, that they were better adapted for quiet security in a box, carefully fed, than for use or profit. It is no wonder that sensible persons become disgusted with such stock. The Spanish Merino, or as we generally term them, American Merinos, on account of the great changes wrought upon them since they were imported from Spain to America, some seventy years ago, can be grown in large herds; they are easily controlled, excel any sheep in the production of wool, and make very good mutton; hence, they are most grown on Texas ranches.

"The improved condition of the wool market has given a new impetus to the sheep-growing business. Some men, of course, in their zeal to acquire a fortune without labor or much time, will rush into this business and make a shipwreck of it.

"During last winter a great many sheep died, and in some instances nearly whole flocks were lost. These sheep generally belonged to adventurers, above referred to; were in charge of men not having experience or practical judgment, or, perhaps, had been driven long distances and went into winter in very bad condition. In no instance did I learn of any serious loss among stock well herded, and supplied with such necessary things as are possessed by almost every flock-master. In Central Texas, although the grass cropped from the prairies by the sheep will sustain them tolerably well, yet experience has taught me that a little grain or cotton seed, principally fed during December and January, is an expense doubly repaid by an increased amount of wool, and more valuable lambs the following spring.

"Abundance of good sheep-grazing lands can be had convenient to the long lines of railroad that cross and intersect our State, near communities having good society, with church and school privileges, at from two to five dollars per acre; and further out, in new counties and distant from towns, good ranch land can be had in quantities as low as fifty cents per acre.

"Upon these millions of acres of unoccupied lands, nowhere surpassed for stock-raising purposes, we give a welcome hand to all honest emigrants, whether they come to invest their capital, or by their strong arms aid us in the development of our great Lone Star State, and assure to them the peaceable enjoyment of all the good things their capital or labor may procure.

"BELL COUNTY, TEXAS, September 26, 1879."

GOATS.

MANY persons believe that there is even a larger profit in raising goats than sheep in Texas. Certain it is, that in every section,

but particularly in the west and southwest, this useful little animal thrives and prospers amazingly. Where the horse, the cow, or the sheep will starve, he finds his choicest food, picking from barren hillside or drouthly plain the thorny leaf of the prickly pear, or cropping with apparent satisfaction and comfort the scantiest herbage.

To the sheep-raiser in the West, the goat is indispensable, as he furnishes meat to the Mexican herders, who prefer "goat's flesh" to anything else. And a small flock for that purpose is generally kept along with the herd of sheep. None, so far as we know, have devoted themselves exclusively to goat-raising in Texas, but those who have tried it, on anything like an extensive scale, say it pays very handsomely. A gentleman at Brackett, in Kinney county, told the writer but a short time since, that his flock of about 2,500 goats, which he had been managing several years, had netted him forty per cent. per annum on the investment.

Whether goat-raising as a *business* be profitable or not, nearly every farmer will find a small flock a valuable addition to the economy and pleasure of his living. A beef or a hog cannot always be safely killed, for fear of losing the meat, but the smallest family can dispose of a kid, and there is nothing better for the table.

THE ANGORA GOAT.

In 1849 eight head of these goats were brought to Austin, Texas, by Mr. R. Williamson, agent of a Tennessee company. They were then known as the Cashmere Shawl Goat. With these, and the occasional importation of others, the goat has become generally distributed through Texas. There is a fine flock at Leon Springs, Bexar Co.

In October, 1875, Mr. J. W. Dunn, of Corpus Christi, imported a small flock purchased from Col. Robert W. Scott, of Frankfort, Kentucky. After four years' experience, Mr. Dunn says: "I find them to be both healthy and hardy—standing our wet northers better than the common goat. The males will shear about five pounds and the females about three and a-half pounds each. My last spring clip was sold to Messrs. Kitching Brothers, of New York, for seventy cents per pound, for the entire lot. And this, when the best Texas improved wool from sheep sold at eighteen cents. The goat is nearly omnivorous, eating almost every shrub, and can live with but little grass. There are in Texas millions of acres of rough, hilly country, admirably adapted to range for goats, and where nothing else could be made to live. The goat is naturally a hardy animal, and free from the diseases so destructive to flocks of sheep. The Angora is a success in California, and, from my experience, I have no hesitation in saying they can be made as profitable in Texas as in California, or even Natalia, their native Asiatic home."

HORSES AND MULES.

THAT Texas is well adapted to the raising of horses and mules, as well as cattle and

sheep, is amply proved by the fact that, upon the first settlement of the country by Americans, and for thirty years thereafter, there were more or less wild horses or "mustangs" in all sections, and in the unsettled portions they were numbered by hundreds of thousands. The wild horse of Texas sprang from escaped gentle stock, first introduced by the Spaniards in their conquest of Mexico, of which Texas was then an integral part. They were the true Andalusian horse, with more or less Arabic blood, and as beautiful specimens of that noble animal as could be found in the world.

Our present stock of horses in Texas are grades upon the "mustang" (mostly half-breeds), but with the exception of a little gain in size, improvement in temper and tractability, have no great advantage over the original stock. These half-breeds average about fourteen hands in height, but are very strong, active and enduring. A good one will carry a man upon his back day after day, from forty to fifty miles, and live on grass. Their qualities as saddle animals are unsurpassed, and for the purpose that they are mostly used (driving cattle) they are better adapted than thoroughbreds. A Texas pony will carry his rider, in a wild chase after cattle, day after day, with nothing but the prairie grass to subsist on. These ponies are worth from fifteen to fifty dollars, according to size and quality. The average price for a broken animal would probably be thirty dollars. The cost of raising them is but little more than the cost of raising a "beef steer," perhaps no more. They live upon "the range," and only require a little looking after, and an occasional salting to keep them gentle.

Of late years, however, much attention has been paid to the improvement of horses and mules, and at any of the country fairs first-rate specimens of the Texas-bred racer or the trotter can be seen.

The Texas mule is generally small, but tough and wiry, and capable of immense endurance. Like his half brother, the "cowpony," he is admirably adapted to the country and its demands. The price of good, broken Spanish mules, as they are called, will range from forty to seventy dollars. It costs no more to raise them than it does the "cowpony."

HOGS.

TEXAS is peculiarly adapted to raising hogs, and the success attending this business is leading to a large annual increase. The greater portion of Eastern Texas is well timbered with oak and nut-bearing trees, which furnish abundant food for hogs, while the large extent of post-oak timber and the "river bottoms" of Central and Southern Texas, supply enormous quantities of the "porker's" favorite food, acorns and pecans.

Very few men have made the raising of hogs a special business, or acquired wealth at it, for the reason that until very recently we have not had railroad or other facilities for getting live hogs to market, and the climate of Texas is too warm to make the saving of pork on a large scale a certainty. Farmers

can always save meat for their own use and as much for sale, but they must have everything in readiness, so that when a "norther" comes, they can commence killing at once, and make the slaughter "quick and lively," so that the animal heat may be thoroughly expelled before warm weather sets in again.

The "northers" in the autumn are but of short duration, but in January and February they extend sometimes over a period of several days, and the watchful farmer will have several opportunities to slaughter with safety as many animals as he is likely to take care of or desire.

The best range for hogs is open post-oaks, and near a river bottom, where there is an ample supply of pecan trees. This furnishes them an abundance of grass in summer, and nuts and acorns during fall and winter. Hogs left to themselves soon get wild, and to make the business pay they must either be confined in pastures, or some one must go among them every day or two, and call them together, feeding a little corn. A very little will suffice to keep them gentle.

Considerable attention has lately been paid to the improvement of the stock, and the "Berkshire," "Chester White" and "Poland China," and other choice breeds are rapidly taking the place of the lank Texas "razor-back."

With the railroad facilities now at hand for shipping live hogs, considering the cheapness of rearing them, no better opening presents itself to the man of moderate means, than a "hog ranche" in a proper locality.

POULTRY.

DOMESTIC fowls of all kinds do well in Texas, and require but little care or attention. The main thing is to provide an abundant range, fresh, clean water, and allow them to live out of doors and roost in the trees. Under these favorable conditions domestic fowls "increase, multiply and replenish the earth," in Texas, with amazing rapidity.

GAME AND FISH.

TEXAS has long been noted for the vast number and varieties of its game—from the noble buffalo (bison) to the smallest of the feathered tribe. Nowhere else on the American continent can the eager sportsman spend his time more pleasantly, whether his favorite weapon be the rifle or the shot-gun. Of course here, as elsewhere, the larger game animals have receded before the march of civilization, but there are still enough left to satisfy the most exacting.

Among the principal game animals we have the buffalo, big horn (rare), bear, antelope, deer (two varieties), cougar, wild-cat, wolf (three varieties), squirrel (three varieties), raccoon, opossum, rabbit (three varieties), prairie dog, havalina (Mexican hog or "peccary"), and others of lesser importance.

The buffalo (*Bison Americanus*) is still plentiful on the extreme northwestern frontier, but he is rapidly disappearing before the destructive long-range rifles of the cow-boy and the hunter. When they are known to be

"down," hunting parties are organized at all the frontier posts, and the work of destruction goes remorselessly on. The buffalo hunter lives on the "range" and follows the poor beast with untiring activity, his object being only to secure the hide and tongue. Thousands are thus slaughtered every winter.

The buffalo ranges from the "Panhandle" of Texas to the Pecos River, but is rarely seen west of that stream.

The black bear (*Ursus Americanus*) is found all over the State wherever the covert is sufficient. He is very plentiful among the rugged hills of the west, where the "bear-grass," his favorite food, is abundant. This he tears up, devouring the soft, pulpy mass of which its root consists.

The big-horn, or Rocky Mountain sheep, has been observed in but one locality, viz.: the Guadalupe Mountains, on the southern boundary of New Mexico.

Antelope are found everywhere on the western prairies, remote from the thickly settled districts. They go in herds of from ten to five hundred, and are extremely difficult to approach. They are gifted, however, with a most inordinate curiosity, and can frequently be enticed within gun-shot by the concealed hunter throwing up his hat or waving a handkerchief.

Of deer we have the "black-tail" (*C. Maccensis*), and the common Virginia deer (*C. Virginianus*). The first named is not found east of the Pecos River, and not in very great numbers anywhere. They frequent the high, bald mountain ranges, and usually go in small herds. The "Black-tail" is somewhat larger than the common deer. Long and prominent ears and a small black tuft of hair on the tail are its distinguishing features. The Virginia or common red deer is too well known to require any particular description. He is scattered all over the State and in many sections is very abundant. On the coast prairies, large herds of them may still be seen from the windows of the passing railway carriage. Here, in former years, before the scream of the iron horse startled these peaceful plains, was his favorite feeding ground. The writer remembers, on one occasion, twenty-five years ago, on the extensive prairie bordering the coast near Aransas Bay, to have seen countless thousands of deer and several noble herds of the wild horse (mustangs). But there were no long-range rifles in those days, and but few hunters.

The cougar (Mexican lion) and panther, though not plentiful, are still found in various portions of the State. They are very timid, except when wounded or starved, when they become formidable.

Wild-cats are plentiful and are usually found in the mountains or heavily timbered river bottoms. They are generally hunted with dogs.

Of wolves we have three varieties, viz.: the Black, Coyote, and Lobo (in the vernacular, "Loafer.") The first named is rare and its pelt is highly prized. Coyotes are very abundant on the prairies, and the lonely wayfarer

who camps out by himself is apt to be rendered a little nervous by their incessant howling; but they are great cowards. The Lobo is the largest of the three and looks formidable, but he is as timid as his half-brother, the coyote. Both are great pests to the sheepmen.

Of squirrels there are the fox, black or cliff, the grey and ground. The cliff squirrel alone is peculiar, living as he does in the rocks and cliffs, and never, so far as the observation of the writer extends, taking to a tree.

'Coons and 'possums are found everywhere in the greatest abundance, and afford much sport to the boys and "cur dogs."

One of the distinguishing features of the Texas prairie is the "mule-eared" or "jackass" rabbit, as he is commonly called—an animal in fact identical with the English hare, with some slight modification, perhaps, induced by difference of habitat. The common "swamp" and "cotton-tail" varieties are found everywhere.

Prairie-dogs are found in great numbers west of longitude 99°.

The Peccary, Havalina, Mexican or wild hog (all local names for the same animal) is found in Southwest Texas and on the sand hills of the Llano Estacado. They go in droves of from half a dozen to twenty and are exceedingly belligerent if disturbed. They are not considered very good eating.

Of foxes we have only the common small grey fox, a very contemptible specimen of his tribe.

GAME BIRDS.

At the head of these stands the noble wild turkey (*Meleagris gallopavo*), which is very abundant in many parts of the State, but so well known as to require no special description.

Of the aquatic birds we have the swan (*Cygnus Americanus*), the Canada and snow goose, and brant (*Anser bernicla*); these begin to arrive about the 10th October, and remain till May 1st. Ducks visit us in vast numbers every winter, and of them we find some twenty varieties, including Teals, Mallard, Canvas-back, Pintail, Black, Wood, Shoveler, Ringneck, Widgeon, Red-head, Ruffle-head, Butter-ball, Scaup, Gadwall, Ruddy and three varieties of Merganser. The coast region of Texas is especially remarkable for the number and variety of the water-fowl that frequent it. Myriads of ducks, geese, swan, plover, snipe and curlew assemble here every winter, and the sportsman can then satiate himself with slaughter. At the mouth of the Trinity River is a famous "roosting" ground. On certain low, marshy islands here assemble every night countless thousands of water-fowl from their feeding grounds round about. In the morning when they disperse in search of "breakfast," the sky is fairly darkened with their numbers.

Two varieties of cranes are with us during the winter, the "Sandhill" (*Grus Canadensis*), and the Trumpeter crane (*Grus Americana*). These arrive in September, but few of them are killed, as they frequent the prairies and open fields, and are very wary. The Trum-

peter crane is a beautiful bird, standing quite six feet high, with white plumage relieved by black wings and back. On the level prairies of the coast they may be seen stalking with dignified steps in every direction, lazy looking, but having a watchful eye on the intruder. They must be shot with the rifle at long range.

Quail are abundant, and of them we have five varieties, viz.: the Virginia (*Ortyx Virginianus*), Massena (*O. Massena*), Blue (*Calipepla squamata*), Gambel's (*Lophortyx Gambeli*) and the Texas quail (*Ortyx Texasus*). Of these the Virginia quail, or common "Bob White," is found in Northern Texas only. The Texas quail has the same note as *O. Virginianus*, and the only perceptible difference between them is that the former is not so large or so brilliantly marked as the latter. The Texas quail is found all over the State in vast numbers, lies well to the dog, and is in all respects equal in gamy qualities both in the field and on the table, to his twin brother *Ortyx Virginianus*. The Blue, Massena, and Gambel's quail have all the same range, viz.: between latitude 27° and 30°, and west of the 100th degree of longitude through to Mexico and New Mexico. The blue quail is of a steel-blue color, about the size of a Virginia quail, very strong and active, rarely lying to the dog. They go in large flocks, and have a call similar to that of the Guinea fowl. The Massena quail the writer has found very abundant in Crockett county, along the rough lands of Devil's River. They lie well to the dog, indeed too well.

The prinnated grouse, or prairie-chicken (*Tetrao cupido*) is found in all the prairies north of latitude 29° and east of 98° longitude, though on Red River it is found as far west as longitude 100°. In our climate the season opens about the middle of July, when the young birds are well grown and quite strong on the wing. At this season a more toothsome delicacy can hardly be found.

Two varieties of snipe are with us during the winter. The common snipe (*Scolopax Wilsonii*) and the red-breast or New York snipe (*S. noveboracensis*). The woodcock is not abundant in Texas, though found in the eastern part of the State.

Of the plover and sandpiper tribe we have many varieties, of which the principal are the Tattler (*Tringa bartramia*), Golden (*Fulvus charadrius*), Bull-head, or Swiss plover (*Charadrius Helveticus*), Marlin, or mountain plover (*C. montanus*). Of the waders we have the greater and lesser Teltale, and all kinds of sandpipers. We have also the common long-beaked curlew (*Numenius longirostris*), which is found in immense flocks on our prairies. The wild-pigeon (*C. Canadensis*) is common in the timbered regions of the State. The Carolina dove (*Columba Carolinensis*), is everywhere met with.

Although not a game bird, one well worthy of description, and peculiar to Texas and possibly Mexico, is the ground cuckoo (*Geococcyx Mexicanus*), locally known by various names: "Carre-camino" (road runner), "Pai-

sano," "Chapparral Cock." "Prairie Cock," etc. This bird, somewhat larger than a quail, has a very long tail and crested head, with brown and sombre plumage. It is solitary in its habits, possesses great fleetness of foot, and never takes wing unless pushed, when it flies only a short distance. There are numbers of birds and beasts beside those named, but none of much interest to the sportsman.

FISH IN TEXAS.

The game fish *par excellence* of Texas is the black bass, or trout, as he is improperly called. He is found in all the clear streams and lakes, and ranges from four ounces to as many pounds, or even larger in size. Even the smallest spring branches are usually stocked with this fine fish, if they have deep pools here and there. The white perch abounds in some of the streams, and most of the lakes and ponds. The catfish is found in all the waters, and is of three or four varieties, the Channel or Blue Cat being the best. In the clear streams of West Texas this fish is gamy, strong, active and an excellent fish for the table. He is not esteemed more highly, only because he is abundant.

The "Buffalo" fish is the largest of the numerous sucker family in the State. It often attains a weight of twenty pounds and upwards. It is a good food fish, and found in every part of the State. It is especially fond of sluggish waters. Its habits are very similar to the European carp, which is also a sucker.

Of the perch family there are many varieties.

The soft-shell turtle inhabits all of our streams west of the Brazos. In the quality of his flesh he is equal to any turtle.

The coast or salt-water fishes, which furnish fine sport and fine eating, are too numerous to describe, but we may mention the pompano, the sheephead, the red-fish, the Spanish mackerel and sea bass as among the best. Oysters are common along the whole coast, and sell all along the railroads, far in the interior, at about one dollar per hundred.

GERMAN CARP.

This valuable food fish has been successfully imported from Germany into the United States, and a supply has been furnished to our fish commissioner in Texas. Those that have been placed in Texas waters have grown with amazing rapidity, showing that our lakes and rivers are well adapted to the fish. The carp can be as easily cultivated as pigs or chickens, and there is no reason why all the streams, lakes and ponds of the State should not be stocked with them in a few years.

PUBLIC INSTITUTIONS.

The public institutions of Texas are such as one might expect to find in a liberal, high-spirited and benevolent community. Ample provision is made for the blind and the deaf mutes and the insane. The former are taught remunerative occupations, so that they may go abroad in the world occupying the honorable position of self-supporting citizens. The latter receive the services of the best medical

skill in aid of their restoration to reason. All these buildings are located at Austin.

By the terms of the treaty of annexation between the United States and the Republic of Texas, ten millions of dollars were paid to the State of Texas. A large portion of this money was expended in the building of deaf and dumb, blind and lunatic asylums, and certain portions of the public domain were set apart for their support. As these lands are sold, the proceeds are invested in bonds and become a permanent fund for their support.

THE BLIND ASYLUM.

The Blind Asylum is located, as all the asylums are, on an elevated site in the suburbs of Austin. The air is salubrious, the water excellent, the buildings commodious and comfortable. Through the influence of Senator (then Governor) Coke, the services of an oculist of great skill and national reputation were secured for the institution; the result has been that, several who were supposed doomed to perpetual darkness, now see. The present number of pupils is eighty-four; these are all being educated and instructed in such useful arts as they are capable of practising.

Some of the male graduates are in the business of broom and brush making; others earn independent livings as music teachers and piano tuners. Among the lady graduates are accomplished musicians and dressmakers. Some of the latter compete in skill and dexterity with those who are blessed with the sense of sight, and reproduce, by the sense of touch, fashions and styles of dress that they will never see. The institution is supplied liberally with pianos, organs, brass and string instruments, sewing machines, and all other necessities for the instruction of the pupils. The annual expenditures are about \$20,000. It may be mentioned in this connection as indicative of the forms taken in Texas by private benevolence, that H. M. Hoxie, Esq., general manager of the International & Great Northern Railway, furnishes any and all the pupils of the blind and deaf mute asylums with free railroad passes, whenever it is desirable for them to visit their homes, which they all do at least once a year. Dr. Frank Rainey, in his circular to parents, says: "Pupils admitted at any time. Everything here is free of charge—board, washing, tuition, books, instruments, doctors' bills, etc."

THE TEXAS INSTITUTION FOR THE DEAF AND DUMB.

The location of the Deaf and Dumb Asylum is on one of the Austin hills, and affords numerous views of most charming landscape. Besides the usual instruction in sign language, and the arts usually taught in such institutions, a most successful effort has been made during the last few years to instruct the deaf mutes in practical printing. A very large proportion of the State printing is now performed by the pupils. Its accuracy, neatness and even elegance attest their skill. The pupils now have the opportunity of acquiring skill in an art that will always afford them lucrative employment. This is an application

of practical benevolence which will commend itself to every philanthropist. The number of pupils at present residing in the institution is about seventy.

All deaf mutes of the State between the ages of ten and twenty years, of sound mind, good moral character, and free from contagious disease, are entitled to admission.

No charge is made for board, tuition, washing, medicines, medical attendance, books, or stationery, all these expenses being paid by the State.

TEXAS LUNATIC ASYLUM.

The Lunatic Asylum is delightfully located, and has ample grounds for the exercise and recreation of patients. These grounds are elegantly laid out and beautified with flowers and growing plants. It was first opened March 1, 1861. From that date until October 3, 1880, there had been 1,418 admissions; of these 636 recovered—138 improved; remained unimproved, 59; died and escaped, 216; remained, Oct. 31, 1880, 369.

A large farm attached to the institution supplies an abundance of milk and vegetables. Because of the increase of population the buildings already in use have been over-crowded, and the project of either enlarging those, or building another asylum in some other locality, is under consideration.

TEXAS PENITENTIARIES.

Texas is perhaps the first State to apply the just rule—that convicts are to be treated kindly—but they are not to be made public beneficiaries. As a very large proportion of crime arises from a hatred of work, Texas prescribes hard work as the cure. Honest men are not taxed to feed rogues. The Texas penitentiaries are more than self-supporting, the surplus being nearly \$100,000 annually. The convicts are well fed, comfortably clothed, are taught useful employments, and are liberally dealt with on discharge; but they are not petted as in some States, and they are made to work. Divine wisdom prescribed labor as the proper punishment for the first crime, and human intellect has not yet found a better. On his discharge each prisoner receives a suit of clothing, \$20 in cash, and transportation to the county from which he came, or its equivalent in money.

The labor of the prisoner is let out to the highest bidder. These can sublet the labor of such portion as they cannot employ. The following figures, taken from the report dated October 31, 1880, will show how convict labor is made productive.

The convicts on hand are distributed as follows, viz:

In prison proper.....	342
Engaged in prison construction at Rusk.....	246
On railroad construction trains.....	159
In wood-cutting forces on Texas and Pacific railroad.....	215
At Kelly's iron furnace, Marion county.....	104
On plantations in different localities.....	1033
Miscellaneous employment.....	39
Total.....	2157

There is a regular, systematic inspection of all gangs hired out, and it is believed that the convicts of Texas are better cared for than those of most other States. The old penitentiary at Huntsville having become insufficient

to accommodate the greatly increasing population, another has been constructed in Rusk, Cherokee county. That location was selected with a view to utilize the labor of the convicts upon the iron mines in the neighborhood.

The Rusk penitentiary has been constructed after the very best models. It contains 500 cells, intended each for two prisoners. The penitentiary at Huntsville, while upon an older model, is an excellent institution.

CLIMATE, TEMPERATURE AND RAINFALL.

THE area of Texas presents two distinct climates, with an intermediate region, sharing in a marked degree the peculiarities of both. These are bounded by lines or belts of longitude rather than of latitude, and are due mainly to the influence of moisture derived from the Gulf of Mexico, which is our natural reservoir.

An examination of the reports of the Chief Signal officer of the United States, will exhibit a marked prevalence of E. S. E. and south winds, not only along the coast of Texas, but at interior points. These southerly and southeasterly winds, starting from the boundary of the regular trades, blow through a great portion of the year, almost with the regularity of the monsoon. They come from the Gulf, charged with vapor almost to saturation, which is gradually deposited as they proceed inland. West of the 100th degree of longitude they either cease to blow with the same regularity, or they have, in a great measure, lost their humidity—for in the travel of such wind as passes from south to north, along meridians west of 97°, it is obvious they have no opportunity to imbibe humidity after their passage over the Cordillera range of Mexico, which having an average elevation of more than 10,000 feet, effectually rob the passing clouds of their moisture. All winds, then, ascending from the level of the Pacific, even if saturated at starting, must be very dry when they reach the west side of the mountains. Hence the prevalence of drouth in that region of Texas west of the 100th degree of longitude.

This delightful trade wind serves in Texas the double purpose of conveying moisture and of tempering a heat in summer that would otherwise be severe—the nearer the sea-coast the cooler and more brisk the current, but the entire area of prairie and a large portion of the timbered country feel its benign influences. So that, what in many other countries of this latitude would be termed “the hot season,” is here not only tolerable, but often pleasant through nearly the entire summer. Sunstrokes are unknown, and exercise, even under the blazing sun, is rendered agreeable by the constant fanning of the “sweet south.”

THE NORTHERS OF TEXAS.

It is understood by many persons at a distance, that the Texas “northers” are dreadful winter storms, which come on so suddenly, and are so severe and extremely cold, that man and beast, caught out on the open prairies, a few miles from shelter, are liable to be

frozen to death in a very short time. In a late “Manual of Geography” the children are taught that “Texas is famous for its north winds. These come on at times so suddenly in winter, and are so cold and severe, that both man and beast have been known to perish in them.”

Texas northers are sometimes undoubtedly severe, sudden and violent, but by no means deserve their reputation for the severity of the cold which accompanies them; nor is the force of the wind ever sufficient to do any damage to trees, fences, or houses.

The people in Texas divide these winter storms into “wet northers” and “dry northers.” The “wet northers” are those which bring rain or sleet, and usually last twelve or fourteen hours, passing off with a moderate north or northwest wind. These really do more damage than the “dry northers,” for stock exposed to their influence become wet, and suffer extremely from the cold. The “dry northers” are attended with peculiar phenomena, witnessed nowhere else.

For several hours preceding the most violent of these “dry northers,” there is almost a dead calm, and the air is unusually warm and sultry. A few low, sluggish clouds drift about in the eddy atmosphere. A dark, muddy-looking cloud-wave next appears, low down, all across the northern horizon, which is the “precautionary signal” of the near approach of this strange Texas storm. A few minutes more and the terrible roaring of the norther is distinctly heard. All hands-out of doors are now running to the house for shelter, where the logs are piled upon the ample hearth. At the same time, the live stock on the prairies have turned tail and are fleeing to the friendly shelter of bottom, bluff, or ravine. All this and more, too; but be not alarmed, for there is no danger, the colts on the prairie and the children in the yard are kicking up their heels, sporting amid the pranks of the whistling wind. But the dark cloud-wave is now over, and no rain, except it may be a very slight mist, followed by a dry, blue, misty haze, with the peculiar smell which is developed by a flash of lightning, though at other times it reminds one of fine straw smoke in its odor. It is highly probable that this turbidness and odor are due to the ozone set free by the high electric excitation in a dry norther.

Let this be as it may, there is evidently, in these dry “blue northers,” (as they are called) a state of high electrical condition of the atmosphere, which produces a thrilling sense of exhilaration in man and beast.

The northers continue without abatement from twenty-four to forty-eight hours, and then gradually subside in from twelve to eighteen hours more. The cold which attends them is variable, often not freezing at all, and then again sinking the mercury down to twenty or even lower. In one instance, at Austin, the temperature sank to six degrees above zero, but this would hardly occur twice in a lifetime.

These dry northers are considered, and no

doubt are, very healthy winds. They free the air of every miasmatic influence, (if such exist) and produce a delightful exhilaration, prompting to active muscular exertion in both man and beast.

Consumption never originates in the area of the norther, and persons already afflicted with that disease are always benefited, and often radically cured, by leading a wild, roving, open-air life, in the country where they are most prevalent.

RAINFALL.

As will readily appear from a consideration of the facts stated in that portion of this article relating to the Climate of Texas, the rainfall decreases in extent as you progress west of the 97th meridian, for the reason as therein stated, that the prevailing winds, which are southerly beyond that parallel, blow over a vast extent of elevated arid country in Mexico, and are thereby robbed of their moisture. But the prevailing opinion that Texas, even as far west as the 100th meridian, is subject to drouths that unfit it for an agricultural country, is not borne out by the facts. A few years ago the new-comer was told that it never rained west of the Colorado River, and that farming would not pay west of the Brazos. Now, all the counties between the Colorado and San Antonio are devoted to agriculture, and the dry belt is moved west of the latter place. It will soon have to be moved farther west. The Castroville colony, on the Medina and Hondo, and the pioneer settlement at D'Hanis, have been farming for the last thirty years, and a more prosperous community it would be difficult to find in Texas or any where else. The north-western portion of Atascosa county is largely devoted to farming; the Germans in Kendall and Gillespie counties are successful farmers—and now comes the report of fine crops in Dimmit county, bordering on the Rio Grande. These localities are not specially favored as to soil or rain, but the people have some knowledge of agriculture, and are willing to expend a little manual labor in its pursuit. There is probably not an equal extent of country in the United States to that of West Texas, that has so large a per cent. of tillable land,

The reason why farming has not been carried on to a greater extent is that stock-raising, an easier occupation, has paid so well heretofore that few could be found that would follow the more arduous life of a tiller of the soil; but for the last few years farming has been largely on the increase. Many men have followed farming for years, and have made money. Appended is a letter from Mr. W. J. Locke, which explains itself and goes far to explode the idea that farming will not pay in West Texas:

"OLMOS CREEK, BEXAR COUNTY, }
TEXAS, July 19, 1880. }

"In accordance with your request I give you a few items with regard to farming in West Texas. I am a native of Illinois, and came to Texas twenty-seven years ago, and my first experience in farming was in this (Bexar) county in 1857. Owing to a late frost

and drouth our crops were a failure. From that time until the present we have not had an entire failure. Some years our crops were light and others very good. In 1872 I made sixty bushels of corn per acre on land that had been in corn fifteen years in succession, without any fertilizing whatever. In 1873 I made but thirty bushels per acre; the difference was owing to the season. Our soil is very rich—capable of producing one hundred bushels per acre. My first experience in raising small grain in this country was in 1874, when I made seventy bushels of oats per acre. In 1878 my sons made over one thousand bushels of oats on ten acres of land. Our soil is a black loam, over four feet deep. The wheat crop of my neighbor, Mr. James H. Coker, for the years from 1873 to 1878 yielded from twenty to twenty-two bushels per acre. He planted cotton one year and gathered one bale per acre, but discontinued the cultivation of cotton, preferring to raise grain. In 1872 the late Mr. Albert Stowe, twelve miles northeast of San Antonio, told me that he made sixty-one bushels of corn to the acre. In 1876 the corn crop of my neighbor, Mr. Anton Horn, averaged forty-seven bushels per acre, and the only plowing it received was but two furrows in the row when the corn was knee high. The present year crops in many localities are light, owing to the hard frost in March and partial showers since. I believe that farming pays better here than in my native State, and during a decade we will make as much grain per acre, which commands a better price here than there.

"W. J. LOCKE."

Mr. Locke is but one of the many, and he admits that his cultivation of the soil is not nearly as thorough as is necessary in Illinois. The employment of manures for general fertilizing is unknown, and there are lands near San Antonio that have been under cultivation for over 150 years. West Texas has a great variety of soils, from the heavy black-waxy lands, that are fairly greasy with richness, to the light sands, so easy of cultivation that a forked stick is often made to do the duty of a plow. There are very few farms in this section where improved machinery is in use, and, in fact, the only one that comes to the mind of the writer is the Capote farm, on the Guadalupe River, fifteen miles below Seguin. This farm is under the management of Major Alex. Moore, and is a marvel to all the country round. This is only the second year under the present management, but the success of modern farming is fully admitted by all who visit this place, and they are many. Major Moore has under cultivation this year nearly 2,000 acres. His crops of oats, wheat, rye, barley and several other cereals, and grasses and corn, have been fully up to his expectations. He plows deep and cultivates thoroughly, and is correspondingly rewarded. The Capote farm has been in cultivation for many years, but heretofore has usually been an elephant on the hands of its owners. The failures in a series of farming experience can always be traced to the manner in which it was carried on, and not to natural causes. With the same amount of in-

telligence and industry that is necessary to make both ends meet in any of the Northern States, a man can win from the soil a competency in this.

The recuperative powers in this country are most wonderful, and its power of endurance equally astonishing. The soil is so porous that, once saturated with a good rain in the early spring, it will mature small grain. One good rain in May and June assures a corn crop, and cotton will languish with limp and shrivelled leaves for months, and, on a good rain, make a good crop. Sometimes there is not a good frost to freeze ice for several years, and seldom later than the 1st February, or earlier than the 1st December. Many crops that are grown in the Northern States in the summer grow best here in the winter. No hay need be put up for general stock cattle, as there is always enough grazing for them the year round, and but little is needed for work stock; and, in fact, many of our so-called farmers feed nothing to their work stock from one year's end to another, obliging it to hunt its own living.

It is a well-known fact, which has been demonstrated in this and the northwestern States, that, as the country becomes settled, the ground broken up and trees growing, the rainfall is more frequent and more evenly distributed. That has been especially the case in Kansas and this State. In 1866 little or no farming was done west of the Neosho River, but now, some of the finest and most prosperous farming communities in that State are located west of that River, and the rainfall is becoming more regular every year. The same is true here. Thirty years ago that section of country between the Colorado and San Antonio was considered worthless for farming purposes, on account of the uncertainty of rain; now it is one of the most prosperous in Texas. In this country particularly there has been a great change going on in regard to vegetation and the relative humidity. Thirty years ago all that country lying between the Colorado and the Rio Grande was a bare, open prairie, like that of Western Kansas, and but little timber was found skirting the streams; now the whole face of the country is covered with the rapid-growing mesquite tree, which not only furnishes firewood, but a more durable fencing material than the red cedar, while the growth of timber has great influence on the rainfall, making it more copious and frequent. Thus nature, in its incomprehensible economy, is preparing the way for the increased population that is destined for this country.

The following table of the rainfall in several of the principal points in this State and the United States, will prove that Texas is not the dry country that its enemies would have you believe, and it must be borne in mind, that the greater portion of the period of time that this represents we were suffering from an almost unprecedented drouth, which lasted till into the early spring of 1880.

RAINFALL IN TEXAS DURING YEAR ENDING
JUNE 30, 1880.

Locality.	Inches.
San Antonio.....	38.33
Brownsville.....	27.37
Brackett.....	26.18
Coleman City.....	39.38
Concho.....	23.83
Denison.....	50.19
Eagle Pass.....	25.43
Coriscana.....	48.53
Fort Griffin.....	37.96
Laredo.....	20.88
Mason.....	22.98
Galveston.....	67.47
Indianola.....	50.79

AT OTHER POINTS IN THE UNITED STATES
DURING SAME PERIOD.

Locality.	Inches.
Breckneridge, Minnesota.....	18.37
Duluth, Minnesota.....	33.67
St. Paul, Minnesota.....	23.44
Cincinnati, Ohio.....	38.16
Toledo, Ohio.....	34.66
Cleveland, Ohio.....	37.13
Sandusky, Ohio.....	39.80
Davenport, Iowa.....	33.86
Dubuque, Iowa.....	37.05
Grand Haven, Michigan.....	34.29
Detroit, Michigan.....	36.71
Port Huron, Michigan.....	31.20
Denver, Colorado.....	12.81
Cheyenne, Wyoming.....	13.50
Salt Lake, Utah.....	18.30
Omaha, Nebraska.....	38.08
North Platte, Nebraska.....	23.77
Los Angeles, Cal.....	21.26
Sacramento, Cal.....	24.86
San Francisco, Cal.....	35.18
San Diego, Cal.....	16.10
Philadelphia, Penn.....	39.39
Pittsburg, Penn.....	32.53
New London, Conn.....	36.14
Indianapolis, Ind.....	36.38
La Crosse, Wis.....	33.29
Albany, New York.....	44.59
Chicago, Ill.....	45.03
St. Louis, Missouri.....	41.68
Buffalo, New York.....	42.27
Bismarck, Dakota.....	18.37
Dodge City, Kansas.....	24.87
Leavenworth, Kansas.....	41.67
Boise City, Idaho.....	11.57

By comparison you will see that the average rainfall in Texas is fully up to that of many of the great grain-growing States of the Union. There were only seven points in the United States where the rainfall was greater than at San Antonio, and Galveston had 67.47 inches—the greatest of all the points named.

Below is a table giving the mean temperature and rainfall for each month of this year, up to the 14th of August, during which there is a heavy rain-storm in progress:

MONTHS.	RAINFALL- INCHES.	MEAN TEM.
January.....	3.48	62.4
February.....	4.01	56.7
March.....	2.42	61.6
April.....	3.94	71.9
May.....	3.04	77.8
June.....	2.26	83.5
July.....	6.30	83.0
To August 14.....	2.78	....
Total.....	28.23	70.9

Thus you will see that the rainfall for the first seven months of this year has been great-

er than the rainfall for a whole year in eight of the States quoted in the first table, and if the same rate continues to the end of the year, the rainfall will be over forty-eight inches. The richness of our soil is admitted by all who see it, and now it is proven that as much rain falls here as in the average of the States in the Union. The market is always good and will so continue for years and years to come; and what more is needed to make this a farming country but men who know how to farm and are willing to work?

So much for the charge that Western Texas is not suitable for an agricultural country, on account of the excessive drouths. It is not denied by any one, that there is an ample rainfall all over that portion of the State east of the meridian of Austin, and, as finally disposing of this article, we append herewith the following tables. We regret that the means are not at hand to bring both of these tables down to date, but they will at least convince any one that Western Texas is not the "rainless region" that some have pictured it.

RAIN AND TEMPERATURE.

RECORD AT AUSTIN, BY D. W. C. BAKER, FOR TWENTY-THREE YEARS.

YEARS.	Inches of Rain.	Years.	Temperature.	
			High est.	Low est.
1857.....	20 00	1857-58	98	22
1858.....	36.37	1858-59	101	10
1859.....	30.24	1859-60	107	18
1860.....	29 61	1860-61	100	23
1861.....	29 69	1861-62	101	23
1862.....	23.17	1862-63	99	17
1863.....	33.85	1863-64	99	6
1864.....	25.16	1864-65	106	18
1865.....	38.40	1865-66	96	21
1866.....	41.95	1866-67	98	17
1867.....	27.19	1867-68	96	15
1868.....	40 09	1868-69	97	19
1869.....	38.54	1869-70	96	11
1870.....	41.23	1870-71	102	22
1871.....	29.21	1871-72	99	15
1872.....	29.81	1872-73	96	13
1873.....	44.94	1873-74	104	38
1874.....	48.79	1874-75	99	10
1875.....	30.70	1875-76	103	28
1876.....	39.96	1876-77	97	20
1877.....	43.12	1877-78	96	23
1878.....	21.56	1878-79	100	16
1879.....	18.34	1879-80	94	32
1880.....	26.21	.....	...	..
Total for 23 years...	774.83			

Average annual rainfall, 33.69 inches.

NOTE.—Temperature is for years beginning August 1. Average temperature at Austin, the past twenty-three years, has been 67.84.

REMARKS.

There has been a steady increase in the annual rainfall at Austin, as is shown by taking periods of five years, viz.:

					Inches.
Average annual fall, 5 years, beginning August 1,	'57	.....	31.49		
" " " " "	'62	.....	32.13		
" " " " "	'67	.....	37.49		
" " " " "	'72	.....	38.31		

The greatest amount of rain which has fallen in any one month during above period of twenty-three years, was in September, 1874, inches 13.84. The greatest in any one

shower was in August, 1860, when seven inches fell in four hours.

Eighteen hundred and seventy-nine was probably the driest year ever known in Texas since its white settlement; yet in most parts of the State there was a fair crop of small grain, and the cotton crop was good, although the year 1878 was also a dry year.

The highest range of thermometer during the twenty-three years has been in July, 1860, 107°. The lowest range was in January, 1864, 6° above zero.

RAINFALL AT MY RESIDENCES IN GRIMES COUNTY.

One residence ten miles east of south, the other fourteen miles west of south, from Anderson, the county seat, for the last sixteen years.

[illegible]

A true copy (condensed) from my record of rainfalls to January 1, 1875.

GWYN MORRISON.

LENGTH OF SEASONS.

There is no appreciable difference between this country and the Southern States of the Union generally in the length of seasons. Spring commences about the middle of February, and planting is begun in February and March. The warm weather sets in about the first of June, and continues till about the first of October. September, October, November and December are the great "cotton-picking" months, and it is hard to find more delightful weather anywhere in the world than an average November or December day in Texas. The air is cool and balmy, and all nature wears a peculiar aspect of calmness and rest, which is most delightful to the senses. The advent of wintry weather rarely occurs before

the last week in December, but at no time is it cold enough to discontinue work out of doors. With the exception of an occasional rainy day or "norther," the industrious farmer can find no reasonable excuse during the entire year to keep "his hands from the plow," or some other useful implement. The resting time is when the corn and cotton are laid by, the wheat, oats and other small grain harvested, and the sweet south breezes breathing over a sea of grassy prairie, invite to a *siesta* and day dreams under the shadow of the wide piazza.

WATER SUPPLY AND QUALITY.

The watercourses of Texas are numerous, but while the principal streams are of great length, they are not navigable to any considerable extent. But the supply of water for all domestic and farm purposes is quite sufficient for the wants of any increase of population. In all the eastern, northern, middle and southern portions of the State, good wells are obtainable at very moderate depths, and the water is wholesome and pure. Springs and rivulets of bright, clear sparkling water are especially noticeable in the cretaceous region west of the Brazos River. After passing the 100th degree of longitude, going west, surface water becomes scarce, but even here a good supply can be obtained by digging almost anywhere at moderate depths, and a sufficiency for stock purposes is easily obtained by constructing inexpensive "tanks" or reservoirs to catch the winter rains.

Cistern water is used very extensively in the towns and cities of Western and Middle Texas, many persons preferring rain-water to the natural supply, which in the cretaceous region is more or less impregnated with lime. Besides there is a common opinion that rain-water is more healthy than any other kind. This may or may not be true, but certainly there are no healthier people in the world than those inhabiting the rural districts of Western Texas, and these depend in the main upon the natural supply.

HEALTHFULNESS.

It may be safely said that the people of no country enjoy a higher standard of general health than Texas. We have not at hand any reliable vital statistics, but the United States census for 1880 will soon be accessible, and that may be consulted in verification of the above statement.

It is true that in the timbered portions of Eastern and Southeastern Texas, along the river bottoms, malarial diseases of a mild type are sometimes prevalent in the latter part of the summer, and these are very distressing to persons from a northern climate, especially the first season; but these complaints yield readily to treatment, and they can be altogether avoided by the judicious selection of a living locality unexposed to miasmatic influences. The house of the immigrant should never be located in a bottom, but on a hill, and if possible, with any creek or river on the *north* side, as the prevailing winds in summer here are from the south. The greater portions of

Texas however, notably of Central and Western Texas, are as free from malarial influences as any part of the world.

Bilious and intermittent fevers, and fever and ague may be expected in heavily-timbered river and creek bottoms in the hot months, but these can be easily avoided by proper precautions, and the danger of them need not be encountered at all.

Consumption, that dreaded and fatal disease of northern climates, never originates in Texas, and many who have come here predisposed to, or suffering with incipient conditions of consumption, are entirely restored to health, and live out their natural lives. Diphtheria, another scourge of northern climates, is, we believe, unknown in Texas.

Winter and typhoid fevers are very rare, and never prevail as epidemics, and the cases that do occasionally occur do not prove of the stubborn and protracted character that attends them in the older States. Endemic diseases are few, and in general they are easily and quickly subdued.

Yellow fever has not prevailed, even in the coast cities for many years, and it is believed that the rigid system of quarantine now adopted will effectually exclude that disease for all time to come.

MEDICAL OPINION.

The following extracts are made from a paper read at the Ninth Annual Session of the Texas State Medical Association, by Dr. J. B. Robertson, one of the oldest and most highly esteemed physicians of the State:

"That portion of West and Southwest Texas lying west of the 98th meridian of longitude, and north of the 29th degree of latitude, has an elevation above the sea, beginning fifty miles south of San Antonio, of 500 feet, and gradually rising, as the line is traced north, to 2,000 feet. This region is drained by the following rivers and their numerous tributaries: Brazos, Colorado, Guadalupe, San Antonio, Nueces and Rio Grande, all of which find their outlets into the Gulf of Mexico. The rapidly decreasing elevation of the country through which these streams pass in their course to the sea, secures to the section named the most perfect and thorough drainage. In addition to this fact, this vast area of territory is entirely free from ponds, marshes, lakes or stagnant bodies of water, to disturb, with their contaminating effluvia, the purity of the atmosphere. Here are also found the principal mountain ranges, of which the Guadalupe is the largest and has the greatest elevation. These mountains, with their intervening valleys and plains, with their springs of pure and limpid water, which for beauty and picturesqueness, are rarely equalled and never surpassed, are beginning to attract the attention of the professional man in search of a locality for the climatic treatment of diseases of the respiratory organs, especially phthisis.

"It is a source of much regret that I have not been able to get satisfactory reports of the range of the thermometer and the barometer, with the humidity of the atmosphere. I am

only able to give the mean temperature for the seasons and year (means obtained from six years' observation at San Antonio ending with the year 1875, which is, Spring, 69.94°; Summer, 85.56°; Autumn, 68.95°; Winter, 52.94°: for the year, 68.85°. The mean average rainfall for the same period was 36.90 inches. For these figures I am indebted to Dr. Fred. Peterson, of San Antonio.

"The pressure of vapor, its weight, the absolute humidity, have, as far as I know, never been measured, but the observations of daily life, by all who have lived in any part of this section, or travelled through it, concur in attesting the astonishing rapidity with which the roads dry after a fall of rain, and the perfect preservation of meats for days, hanging in the open air, indicating unmistakably a small amount of moisture suspended in the air.

"That eminent English author, Dr. James Henry Bennett, in the second edition of his valuable work on the 'Treatment of Pulmonary Consumption by Hygiene, Climate and Medicine, in its connection with Modern Doctrines,' after demonstrating the error of sending consumptive patients to all the points, both in Europe and America, that have been selected, and are now being used for the climatic treatment of consumption, concludes thus: 'We are always, however, at a loss to find a cool summer residence in the States, where the minimum in July and August would be between 50° and 60° Fabr., and the maximum between 60° and 70°. I wish, therefore, my American colleagues would try to find out some such locality in their mountain ranges at an accessible distance from New York.'

"While the range of the thermometer in the region here treated of, as far as record has been kept, is higher than that indicated by this experienced author, the known dryness of the air, together with the cool and refreshing breeze, which is universally prevalent, may more than compensate the consumptive patient for the difference in the range of the thermometer. The beneficial effects of the climate, in the area treated of, is not simply a matter of opinion on the part of the writer on purely theoretical grounds. During a practice of over thirty years in Central Texas, he has seen many patients sent there with clearly marked indications of consumption, and at a time in the history of the country when such patients had to rely almost entirely upon the climate for the benefit they received. In all cases the change gave marked relief, with, he believes, a prolongation of life for years with some, and a perfect cure with others."

Those invalids coming to Texas, who have sufficient vitality to endure an active life, would do well to prepare themselves for camping out, provide ample means for fishing and shooting, and start for the rarer and drier atmosphere of the mountainous regions of Western Texas.

To those who have a taste for these sports this will be very pleasant; and for invalids nothing is more conducive to their health and good digestion, than the appetite born of

exercise in the open air, and the game with which they satisfy it. All physicians advise invalids coming to Texas to take plenty of out-door exercise. No evil consequences result from sleeping in the open air. The more the invalid can live out of doors the better the chance for his recovery.

ADVICE TO IMMIGRANTS.

Many immigrants go astray, and suffer much loss and many disheartening experiences, for the want of intelligent thought and prudent foresight, before starting out.

WHO SHOULD GO TO TEXAS.

1. Those who wish to engage in agricultural pursuits.
2. Those who wish to engage in manufacturing enterprises.
3. Those who wish to engage in stock-raising.
4. Those who seek a field for the profitable investment of capital.

Under the first heading are included those who wish to hire out as farm hands, those who wish to rent lands, and those who wish to become owners of farms. The demand for farm hands is great, and the wages paid are fair. For a young man who is entirely destitute of capital, it is a good idea to work on a farm for one year. By so doing, he will gain a valuable experience and make some money, and if he is industrious and worthy, can easily rent or buy land for himself for the next year.

The difference in favor of settling in Texas, as compared with the older States, consists in the fact that the poor man can succeed in establishing himself in a home of his own here more easily than elsewhere.

WHEN TO GO TO TEXAS.

Going early in the year will give the immigrant time to look about and locate himself advantageously, to buy or rent land, and in case of purchase, to clear and fence his land, build his house, break his land, and be in readiness to plant in time to make a crop. Arrangements for renting land are usually made in December, and renters generally take possession of their land by or before Christmas, but lands can be rented as late as April.

Immigrants from the Northern States should not forget that they are going South, not West, and that the climate and seasons for sowing and reaping are much sooner than they have been accustomed to, therefore they should start in the late summer or early autumn. The preparation of lands for seeding of wheat, and the harvesting the cotton crop always causes an active demand for labor, when immigrants can obtain immediate employment at remunerative prices, and at the same time secure suitable employment for the coming year. The best places are most frequently engaged in the fall, both in the renting of lands or as laborers. So great, however, is the demand for good and reliable labor, there is no season when employment cannot be obtained.

The constant development in all departments of life which are going on in the State,

assures the patient and industrious immigrant a certainty of remunerative employment, extending the season for immigration to the whole year.

WHERE TO GO IN TEXAS.

This is a question each immigrant will decide for himself. The pursuit he chooses to follow and his individual taste, will direct him to select that place for a home which offers the best prospects of success, and would be most agreeable to himself and family. It is best to seek information from reliable and trustworthy sources, by specific inquiries in relation to the business in which you propose to engage. The Southwestern Immigration Company has no other interest to serve than to people the country, by exhibiting its resources and advantages, and will be impartial as to localities. It will advocate no special sections, but its agents will be instructed and enjoined to furnish truthful information of all locations of which they are inquired. Having obtained correct information from them, and such other sources as are at command, proper and suitable selections can be made without much difficulty.

HOW TO GO TO TEXAS.

This will be determined from the immigrant's location and circumstances. Rates of passage over the routes of travel vary so frequently, that a list of rates given now would be incorrect in a few weeks. This company contemplates making arrangements, and the work is now under progress, of perfecting a system of rates over the important trunk lines of railroads and water routes, both by river and ocean, which it hopes will be uniform and cheap. An effort will be made to establish low rates from all important points on railroads in the United States, and from the principal shipping cities of Great Britain and Continental Europe directly to the Southwest. For the present, the immigrant can learn from the nearest station-agent, the rates to any given point in Texas as now charged. It is also contemplated to make arrangements for the transportation of the household effects, tools, and implements of immigrants at the lowest class freight rates. As to routes of travel, the Southwestern Immigration Company will strive to be wholly impartial, seeking at all times to secure the most accomodating terms for the immigrants.

In advising immigrants how to come to Texas, the plan of coming by land, with their wagons, teams, and some of their best stock, is recommended for their careful consideration. It is true, as a rule, that a family in selling off everything, preparatory to moving to a new country by rail or water transportation, sacrifices much in the low rate at which the property sells. This is especially true of horses and cattle, both of which they must have in their new home.

The autumns in Texas, from September to December, are generally mild and pleasant, and a family properly equipped for travelling with wagon, ambulance, or carriage, which can be purchased at slight cost, will be enabled

to travel with ease and comfort many hundred miles; bring with them as much of the home stock, including the work horses and mules, as they see proper; purchase on the way forage and subsistence at a very small outlay in money, and by this course can reach their new home with these ready for use. If they have, after getting here, a surplus horse, mule, wagon, carriage, or ambulance, it can readily be sold in any neighborhood for a fair price. A pair of horses or mules will bring a year's supply of provisions, or make an important payment on a tract of land, should they conclude to buy. Brood mares and colts, as well as half or full bred cattle, command a good price in all parts of Texas. While this would be a slow way to travel, its advantages over that of coming quicker by rail, after arrival of the family here, would be in having the necessary stock for farming or other purposes, as required, instead of having them to purchase.

RENTING LANDS.

There is a large amount of land for rent each year on the most favorable terms. Where the landlord furnishes the land and improvements only, and the tenant the team, tools and provisions, the landlord receives from one-fourth to one-third of the crop, and the tenant has the remainder. Where the landlord furnishes everything necessary to the making of the crop, except the provisions for the family of the tenant, the crop is usually divided equally between the parties. The two systems of leasing offer industrious poor men, and especially those with considerable families, golden opportunities to become independent, and the owners of farms at an early day. Thousands of men in Texas, who are to-day independent and the owners of fine farms, made the first step towards success by renting land in the manner described, and many of them purchased farms with the profits of a single year's lease. Of course it is more profitable for a man to buy land and improve and work his own farm, if he has the means to do so, but for those who are destitute of capital, and are possessed of industry and some knowledge of farming, the system of renting land for a share of the crop cannot be too highly recommended.

When the immigrant has got to Texas, he will, of course, first seek to erect a shelter for himself and family. The climate is such that a very cheap structure will be found perfectly comfortable, until time and means afford the opportunity for greater convenience and elegance.

THE COST OF MAKING A HOMESTEAD.

We assume, as an average, that the immigrant's family consists of himself, wife, and three children, two of whom are over five years of age, and one under; and that the railroad fare is \$32, and while to some points it is less than this, to others it is more. This would call for—

Three tickets at \$32.....	\$96 00
Lunches and incidentals.....	25 00

Total cost of taking a family of two adults and three children to Texas.. \$121 00

good living, but lay something aside for the hour of sickness and old age.

At the present time there is great need for farm labor, and a large amount of cotton will go to waste if labor cannot be had from abroad. Farm labor is always in demand, and land can always be had for rent, either on shares or money rent at very reasonable rates. As yet there is more land than labor in this country. You will be told, and by men here, that this is no place for a poor man, and the very men who tell you so, and who are now the possessors of thousands of dollars in lands and stock, came to this country so poor that they were glad to accept a dry crust from the table of a poor Mexican peon (slave). They were men of stern stuff, and stayed. Are you not equally brave in facing fickle fortune and winning from her a fortune and a position in society? Gold lies not loose upon the ground, but we have a rich soil that will produce abundant crops with less labor than any other portion of the Union. We have fine natural grapes; we have a climate the equal, if not the superior, to any in the world; we have a market for all the produce that can be raised, and we have a hearty welcome for all who wish to make this their home, and become one of us; then, why ask what will an immigrant find to do in this country? If he wishes to work he need not be idle a day. If he is a lawyer he had better stay away, we have too many already; if a doctor, he had better go to a country where people get sick, this is too healthy, and we have to import invalids to keep alive the milk of human kindness; but if he is a mechanic, a farmer, or any other man with manual labor as his stock-in-trade, this is the place for him—his commodity is in demand and will bring a fair price.

TEXAS A WORKSHOP FOR MAN.

From the overcrowded mills of New England; from the sturdy tillers of high-priced Western lands; from the dark and dreary mines of Pennsylvania; from the farmers, mechanics, miners and artisans of this country, and from the overworked and poorly fed millions of the old world, the cry is daily repeated, "Where can we find relief? What country offers us a home with better opportunities for an independent living?" This question, so pertinent and full of feeling, was answered by the Hon. Wm. W. Lang, in his eloquent oration before the Agricultural and Mechanical College of Texas.

An eminent writer has said, "The earth is the ground floor, so to speak, of nature; the home, or rather the cradle of man and of nations—the dwelling place of our race. It is not merely a region of immense space—a vast superficies; it is the theatre where all the forces of nature and the laws of nature are displayed in their variety and interdependencies. Besides this, it is the field of all human effort, and the scene of a divine revelation!" In the view that it is the great workshop of nature, and the home of all natural elements and

forces, may be comprehended the whole body of the material sphere, but, as the home or cradle of man and the scene of human efforts, the limit must be circumscribed by the boundaries of those portions that offer to the human family, by reason of natural resources, soil, climate, atmosphere, vegetable and animal life, the best opportunities for rapid and continual advancement in power, in wealth, in civilization, in a ceaseless development of his power of thought. Man by his very nature turns away from the glistening icebergs, the chilling blasts and rigorous seasons of a polar zone, where two-thirds of his life must be spent within the narrow limits of closely-built walls, and sustained by artificial means. He does not care to dwell under the burning rays of a tropical sun, and however rich the soil or exuberant the vegetation, he will not make his home where disease-engendering malaria is the burden of every breeze, where listless torpidity seizes upon all his intellectual powers. Nor will he rest upon the barren sands of a Sahara, though its sunlight be the brightest, its atmosphere the purest. None of these portions of the globe offer a home to the Caucasian. But within the confines of this great State of Texas, with its incomparable climate and soil, adapted to the production of everything demanded by the necessities of the human race, with its mountains and hills ready to yield untold wealth to the industry of the miner, with its streams and rivers offering him food and easy transportation to an extensive coast, with its valleys and almost boundless prairies of unsurpassed fertility and beauty, the very inspiration of health and energy—have we not all that any country can offer as a home to the human family?

There are in Texas no glistening icebergs, nor dreary winters holding the earth for months in their icy embrace—no season of cold and inclement weather, during which the farmer must consume in feeding and sheltering his perishing animals, all that food and all that profit for which he has toiled under the burning suns of July and August. The climate of Texas is indeed incomparable. There is no extreme of cold to freeze and consume, nor of heat to enervate and destroy. The glorious configuration of her surface tempers the rigors of a northern winter, and the scorching heat of a torrid summer to a variety of weather conducive to health and vigor. Her soil is rich and fruitful, repaying the husbandman for his toil with great liberality in a series of crops whose diversity is without a parallel, and in this diversity there is a security, an insurance, so to speak, which no other portion of the world can offer. For if the falling rains hurt the wheat harvest, they also give vigor and growth to the young cotton plant.

That which injures one crop, but makes the other more fruitful. Nature's great law of compensation is exemplified. The diversified landscape contains valleys fit for a world's granary, and mountains like those of which the prophet spoke when he said, "Out of whose hills thou mayest dig brass." Hidden beneath the fruitful soil is untold mineral

wealth. The husbandman and miner alike have their reward. Turn where we may upon the broad domain of Texas, we find the elements of wealth and prosperity waiting the hand of industry to subdue and apply them to the uses of man. The means of comfort and competency are to be found everywhere. Industry will never fail to place its possessor in the honorable position of an independent and self-supporting manhood. When the resources of Texas and her rapid increase in population are set before the thoughtful mind, an answer is sometimes returned, that "this is all well for the present generation, but that the next or at most the next following that, will find itself suffering from the same evils of exhausted soil and over-crowded territory that oppress so many of the present generation." There are many farmers in the Eastern States pouring expensive fertilizers upon exhaustive lands that their grandfathers bought because of their great productiveness, in the hope that they would descend in undiminished vigor to their seed forever. The fathers who in early life emigrated to the prairies of Indiana and Illinois, now find scant opportunity for their sons among the high-priced lands of those States. May not they ask, and wisely ask, "Will not the same result follow the spring-tide of immigration which is now flowing over Texas?" We think not. For Texas, situated as she is, so to speak, at the foot of the North American continent, is enriched with the washings of countless ages until her soil has a depth to which no other soil on the continent extends. But the size of Texas precludes all fear of her being crowded for generations yet to come. The mere mention of square miles by the hundred thousand, and of acres by the hundred million, conveys but little idea of the magnitude of Texas, and her capacity for affording homes and profitable employment to millions of people. On page five of this pamphlet, an effort was made to realize the vastness of Texas, by a comparison with other States and other countries. We will endeavor to make some comparison between her capacity to produce and the world's consumption.

For the cotton year ending September, 1879, the cotton crop of Texas was 951,093 bales, and it was produced on 1,808,386 acres or 2,825 square miles of land, being a little less than the one-ninety-seventh part of the entire area of the State.

The entire cotton crop of the United States for the same year was 5,020,387 bales; it was produced on 12,595,510 acres of land. If we deduct this from the entire area of Texas, we shall find that Texas after producing the entire cotton crop of the United States, would have 162,992,330 acres left.

The wheat crop of the United States was 448,755,118 bushels, and it was produced on 32,545,899 acres. If we assume that Texas has produced all this wheat, besides the cotton of the whole country, we shall have 130,446,431 acres left.

The amount of corn produced in the whole United States was 1,544,899,193 bushels, and

it was grown on 53,085,401 acres. If we take this from the acreage left after producing all the cotton and all the wheat of the country, we shall have left 77,361,030 acres—so that Texas could produce all the cotton, all the wheat, and all the corn, the principal articles of bread and raiment used in the United States, and have more than 77,000,000 acres of land left.

But little more than half the area of Texas would produce all the cotton, wheat and corn of the United States, while that which remains has timber to an incalculable amount, and pastoral ranges upon which millions of sheep could feed, and wool enough be produced for a nation's clothing. Beneath the soil lies hid coal, iron, copper, and other minerals, enough to supply the whole United States. Should there be a famine in all the rest of the country, Texas could take upon herself the task of supplying the whole United States with bread and corn for food, and cotton and wool for raiment.

But we may take a step farther, and we shall see that the world's consumption of cotton is about 12,000,000 bales, and that Texas has the capacity to produce ten times as much cotton as the whole world consumes.

Competent statisticians state that the amount of land used in growing the nine principal crops of the United States, cotton, wheat, corn, oats, barley, hay, rye, potatoes, and buckwheat, is 223,763 square miles—so that Texas has land enough to raise all the nine principal crops of the United States, and have a garden plot of 50,000 square miles to spare. These simple calculations indicate the part which Texas is destined to take in the world's production. Her soil, enriched as we have seen, by the washings of a continent, cannot be exhausted, while generations must elapse before her boundless territory can be even moderately filled with people. Within her boundaries almost every production required for the use of man can be grown. The mineral resources of the State are boundless in extent and wonderful in richness. All that tends to the comfort and happiness of mankind, is found in abundance within her borders.

A country with so many capabilities and such a variety of resources, will always afford a great multiplicity of occupations. No military servitude, taking the best years of youthful vigor and early manhood for the service of the State is exacted here, as is done in so many countries on the other side of the broad Atlantic. The government is managed on the economical principles of "pay as you go," and the State this year calls for no more than forty-five cents on the hundred dollars, while the county levy is but half that amount. Sixty-seven cents on the hundred dollars, all told, will surely satisfy the most clamorous advocate of cheap government.

These are a few of the manifold attractions and advantages which makes "Texas the home and cradle of man," affording such splendid opportunities for rapid and continual advancement in power, in wealth, in civilization, in a ceaseless development of the power

of thought, and which to the peoples of all climes and all nations, she offers in the language of the eloquent speaker before quoted, saying: "Come, take your places in the front rank of those who, inspired by the heroic traditions of her past, and her grand future destiny, are now battling for the material prosperity and progress of Texas, and cease not your efforts until you shall have adorned her vast continental area with a splendid agriculture established from border to border, lines of railroads, canals, and telegraphs; taken tribute from the rich deposits of her mines and mineral lands; built up her manufactories, her cities and towns, her public buildings, churches, and, above all, her school-houses. Provided with men true to her institutions, men capable of directing the construction and operation of her public works and of developing her rich stores of latent material wealth, Texas will attain her proper degree of industrial prosperity, and become the admiration of the civilized world."

THE WINTER AND THE CROPS.

HOW THE "BLIZZARDS" OF THE NORTHWEST HAVE EFFECTED WHEAT AND CATTLE—LESSONS FOR THE FARMER.

We copy the following graphic description of a "Northern" blizzard, from the correspondence of the *Dubuque Herald*:

WISNER, NEB., March 10, 1881.

How shall I write of this timberless plain? The past summer was one of sunshine. The present winter has been one of tempest.

Climate makes a country rich and prosperous, or it may make it a waste. The weather and climate are one. Men speak of the weather just in proportion as they love nature. A storm in the great Red River Valley is telegraphed to all sections of the country. A heavy frost in Kentucky is known the next day in all parts of the world. The tobacco crop may have been threatened. The great plain prairie country west of the Missouri is subject to weather of violence, and in obedience to law.

The blizzard is a fact, a terrible, perilous fact. Its merciless fury has not been confined to Nebraska alone this winter, but the entire Northwest has felt its killing, devastating touch. As I write, human life is safe only within doors. During the blizzard of February 12, a near neighbor started for his corral in mid-afternoon; at midnight he found himself knocking at the door of a distant dugout, still alive, but where he had wandered or been driven by the storm he could not tell. It was the 14th instant before the fury of the storm so abated as to allow him to return to his home, to find one-half of his stock stiff in death. There must be a compensation somewhere that induces men to brave such danger.

The government gives a man a home for planting a few acres of trees; the State of Nebraska exempts property from taxation to encourage forestry. You who dwell in cities and towns know nothing of the wonderful powers exerted by the winds upon the great plains. The chemist tells us that hot water under pressure is the most powerful of known solvents; so a snow-storm, driven by a fierce wind which has gathered mountains in its flight of hundreds of miles across a treeless plain, becomes a blizzard, before which human life is as a toy in the hands of an athlete.

Nebraska is inferior to Iowa in all things that

go to make up an agricultural State. Your certain rainfall, timber and coal are all in all to a new State. Strange as it may appear, the Agricultural Department Report for 1878, places Nebraska in the front rank as a corn-producing State. John Phoenix's idea of happiness may be realized here—

Corn in the big crib, money in the pocket,
Baby in the cradle, and a pretty wife to rock it.

Western Nebraska, like Western Kansas, may produce a crop once in a dozen years, and it may not—the chances are too many in favor of the bank for a man to risk even his pocket change in the venture. The great and growing interest here is the grazing business. Grass is abundant, water fairly plenty in running streams, and easily obtained by digging, and everything seems to favor the future of that business, except the winter and the blizzard. The present winter has demonstrated the more than folly of trying to winter stock in this section outside of warm sheds or barns. Go with me on a day's drive among my neighbors. I can point out to you the carcasses of cattle and sheep, and hogs enough to have built a good barn for every stock raiser in the country. The interested party who represents that stock requires less protection here than in Iowa is a falsifier, "and the truth is not in him." Be not misled, you who think of coming to Nebraska to engage in the stock business. Come with your eyes open, and remember first that cattle require as much care and protection here as in Northern Iowa or Minnesota. The feeding season is as long, the winter more severe, and the weather fully as cold. A hundred miles west from here you reach the eastern boundary of the range where cattle sometimes winter on buffalo grass. The present winter has been a wasting exception. Over all that vast range in Nebraska, Dakota, Colorado, Wyoming and Montana, the grass is under snow and sleet, so deep that no bovine can reach it. He who counted last November "the cattle on a thousand hills as his," is shorn of his earthly possessions. The plains and the canyons are

Rich in the bodies of the slain.

The average loss attending this growing interest, always large, has never before taken capital, stock, increase and all. As a result, cattle must rule high for a few years to come. During the month of January the mercury touched 40° below zero, and once in February it reached 30° below. The cold has been steady and has held unbroken sway.

The above is a gloomy and foreboding picture of a country which has been extolled as the very Arcadia for delightful and profitable homes. It has been truly stated that this has been an exceptional cold winter, and the consequences have been much suffering in all the Northwest, attended with great loss of live stock, in some instances of human life, and also from a want of transportation, all trains having been blockaded, week after week, by terrific snow-storms, and even while I write, March 23d, 1881, it is reported that another of those terrible storms is prevailing in the Northwest to such an extent as to stop all trains. The financial editor of the *New York World* says:

"The most important news of the street to-day, I think, is the weather report from the West. More heavy snow is reported, and it is acknowledged now that the winter wheat crop is in a very bad way."

While it is admitted that the winter has been uncommonly severe, it is no unusual circumstance for these blockades of trains to occur in ordinary mid-winter, and while all this suffering, inconvenience and loss of property was occurring, in

Texas the farmers were ploughing their lands and planting their seeds; and their flocks were making a good living upon the wild grasses of the prairies. At this writing the crops are planted, and all farming operations are far advanced—although this has been the severest winter known in Texas, stock men assert that the losses for the year ending first of March, 1881, will not exceed 10 per cent., and that their flocks have gone through the winter in good condition and healthy.

RAILROADS IN TEXAS.

Nothing connected with the material growth and prosperity of Texas presents so striking a picture as the history of the various railway enterprises constructed or projected within her borders.

Each year leaves a record of still further development in internal improvement, the faith and energy displayed by both home and foreign capital showing the importance of Texas among her progressive sister States, and arguing well for the future. The large increase in our population during the past ten years, the numbers being nearly doubled, is to be accounted for in great degree by the completion of railroads through all eligible sections of the State. Thus we have been brought in connection with the outside world and have had the products of the manufacturing centres placed within easy grasp. The fertility of our soil and attractions of climate became known to capitalists and enterprising men looking for fresh and safe fields of investment, and so shrewd were the calculations of these moneyed elements that immigration seemed to begin simultaneously with the laying of the first rail. Towns sprang up as if by magic as roads were extended, and daily grew under the support of fast settling rural districts surrounding them.

At the close of the war in 1865, there were but six railroads in Texas that had track laid in running order, viz: the Buffalo Bayou, Brazos & Colorado Railroad, from Harrisburg to Alleyton, eighty miles; the Houston & Texas Central Railroad, from Houston to Millican, eighty miles; the Washington County Railroad (now the Austin division of the Central), from Hempstead to Brenham, thirty miles; the Galveston, Houston & Henderson Railroad, from Galveston to Houston, fifty miles; the Texas and New Orleans Railroad, from Houston to Liberty, forty miles; and the Columbia & Brazos River Railroad, from Houston to Columbia, fifty miles—making a total of 330 miles of railroad in actual operation fifteen years ago. The Southern Pacific Railroad (now the Texas & Pacific) was under operation from Shreveport, La., to the Texas line, but at that period had not penetrated the State.

Now there are twenty-nine different lines of railroad in actual operation within the State, with a total mileage in running order of about forty-five hundred miles, showing that since the year 1865 no less than forty-one hundred miles of railroad have been constructed and placed in running order.

No other part of the world now witnesses such pronounced activity in the construction

of great lines of railway, as Texas. The eyes of the financial world are turned upon her, and schemes of gigantic magnitude are being consummated within her borders. What is popularly known as the "Gould Combination," now controls the Missouri Pacific, the Missouri Kansas & Texas, the Texas & Pacific, the St. Louis Iron Mountain & Southern, and the International and Great Northern Railroads, with their various branches and adjuncts. The Missouri Pacific, from its terminal point on Texas soil, at Dennison, has extended its arms, one on the East, through the counties of Grayson, Fannin, Hunt and Raines, to a connection with the Texas & Pacific and the International & Great Northern Roads at Mineola, in Wood county; the other on the West, through Denton and Fort Worth (where it crosses the Texas & Pacific), thence nearly due south, through Johnson and Hill counties, to Waco, in McLennan county; thence to Temple, near Belton, in Bell county, where it crosses the Gulf Colorado & Santa Fe Railroad, thence the line will be run to a connection with the International & Great Northern Railway, at Taylorsville, in Williamson county.

The International & Great Northern Railway, already completed and in running order some eighty miles South-West of San Antonio, is pushing to Laredo, on the Mexican frontier, with great rapidity. The Texas & Pacific has reached the Pecos River, and is proceeding Westward towards El Paso at the rate of more than a mile a day. The Houston & Texas Central Railroad has completed its Waco Branch, to a connection with the Texas & Pacific Railroad at Cisco, in Eastland county.

The Texas & St. Louis Narrow Gauge, is running trains from Texarkana to Waco, and will be pushed Westward, to the Rio Grande frontier. The East Line & Red River Narrow Gauge, is working on steadily West, has reached Greenville, Hunt county, and will go thence probably to Dallas. The East & West Texas Narrow Gauge, is finished from Houston to Moscow, in Polk county, and will be pushed thence to Marshall, and with its various proposed connections, will constitute a complete narrow gauge system. The Gulf Colorado and Santa Fe Railroad, already completed some fifty miles North of Belton, is pushing forward in two directions, its branch on the East, running North from Temple Station, in Bell county, to Dallas or Fort Worth, where it will connect with the Texas & Pacific. Its main line on the West, projected through the counties of Lampasas, Brown, Coleman and Taylor, where at Abilene, it will cross the Texas & Pacific, on through the Panhandle, toward Santa Fe, New Mexico, its ultimate destination.

The Texas Trunk is running from Dallas to Kaufman and beyond, and will push its line rapidly to Sabine Pass, on the Gulf of Mexico, through the counties of Henderson, Anderson, Cherokee, Angelina, Tyler, Hardin and Jefferson. The Chicago, Texas & Mexican Central are grading between Dallas and Cle-

burne, in Johnson county, and surveying a continuance of their line northeast to Paris, in Lamar county, and southwest toward Mexico.

Many other important lines are projected, and some of them under construction, but so rapidly are these various enterprises being constructed that it is difficult to keep up with them, and our design is only to indicate, in a general way, their magnitude and extent, and the bearing they necessarily have upon the near future of our State. Already we feel the effect of the vast sums of money expended in their prosecution. Labor is in demand at high wages, trade in every department is stimulated, and the State seems to have entered upon an era of unexampled prosperity. The immigrant can now come to Texas with the certainty that remunerative occupation awaits him. Lands are cheap, wages are high, crops, the past season, have been abundant, and bread and meat are plentiful.

The enormous extent of railroad building now going on in Texas has but one drawback. The scarcity of labor is being seriously felt in the interior of the State, and it is anticipated that great trouble will be experienced in working and securing the present year's cotton crop. This condition grows out of the fact that the activity in railroad building now going on in Texas draws labor from the fields, the price paid for labor by the railroads being highly remunerative. In many instances, farms are being deserted altogether, the labor thereon taking to railroad building. Unless an influx of labor can be obtained from some source, the present year's crops will be lightened. As a whole, the prosperity of the State may not be injuriously affected by this scarcity of labor, as the money paid out by the roads will cover all deficiencies, although in the matter of agricultural productions the State may not show up as well as it did during the past year. Of course, after awhile, the railroads will have to see to this matter of agricultural production. These roads must be made to pay. However, the outlook for the present year is, that there is not labor in the country to cultivate and gather a cotton crop any where equal to that of last year. The railroads are absorbing everything.

The first railway projected in Texas was the Buffalo Bayou, Brazos and Colorado (now absorbed by the Galveston, Harrisburg & San Antonio Railway). Work was commenced on this road in 1852. By August the year following twenty miles toward Richmond were completed and in operation, but the war coming on some years later, all railroad building ceased, until 1865, when, as stated above, only 330 miles were in actual operation, and these so worn and dilapidated from rough usage and the lack of means and material to keep them in repair, that practically they had to be reconstructed, so that railroad building in Texas may almost truthfully be said to have begun only with the close of the civil war in 1865.

The following table exhibited the extent of railroad building in Texas at the close of the

year 1880. Since that time to the present (August, 1881) there have been added about twelve hundred miles of constructed road, and building is now progressing on the various lines at an approximate rate of two miles per day. It may be safely estimated that by the close of the year 1881 there will be in operation in Texas not less than six thousand miles of railroad, twenty-seven hundred miles of which will have been built in 1881. A very simple calculation will show what an enormous amount of money has been spent in the State from this source alone:

RAILROADS IN TEXAS, 1880.

GAUGE.	ROAD.	Miles in Operation.	Miles constructed, 1880.
Standard.	Houston & Texas Central & Texas Central.....	618	47
"	Texas and Pacific.....	608.81	160
"	International & Great Northern.....	609.60	80.30
"	Galveston, Harrisburg & San Antonio.....	233	18
"	Gulf, Colorado and Santa Fe.....	236	115
Narrow.	Texas and St. Louis.....	203	123
"	East Line and Red River.....	123.50	30.50
Standard.	Texas and New Orleans.....	108	None.
Narrow.	Texas Mexican.....	58.50	5
Standard.	Houston, East and West Texas Gulf, Western Texas & Pacific.....	66.80	None.
"	Denison Pacific (West Branch Missouri Pacific).....	41.50	"
"	Denison & Southeastern (East Branch Mo. Pacific).....	52	31
"	Galveston, Houston and Henderson.....	50	None.
"	Rio Grande.....	22	"
"	Texas Western.....	39	20
"	Dallas and Wichita.....	25	None.
"	Montgomery and Central.....	16	"
Narrow.	Texas Western.....	41	"
Standard.	Henderson and Overton.....	25	"
Narrow.	Galveston, Brazos & Colorado.....	13.50	"
Standard.	Waxahachie Tap.....	12	"
Narrow.	Longview and Sabine Valley.....	12	"
"	Sabine Pass and Northwestern Texas Transportation.....	7.75	"
Standard.	East Texas.....	25	6
"	Chicago, Mexican Central and Rio Grande.....	None.	None.
"	Texas Trunk.....	12	12
Totals.....		3,300.96	662.80

Texas is the tenth State in the Union in respect to railroad mileage, and considered in her relation to that gigantic scheme of railroad extension, which has for its object the control of the carrying trade of our neighboring Republic of Mexico, is assuming a vast importance. Situated, as she is, in an intermediate geographical position, across her face must necessarily pass those great arteries of trade which will soon send the life blood of commerce from the east to the Gulf of California on the west, and the remotest regions of Mexico on the southwest. Much of that vast country, grand in its resources, no less than its extent, is undeveloped, shut out from immigration and capital, hitherto by the lack of transportation.

But two lines of railway are competing in their race for Mexico. The Atchison, Topeka and Santa Fe have reached El Paso, in the extreme western corner of Texas, connecting with the Southern Pacific at that point. It is now pushing southward into Mexico as fast as possible, for the rich traffic of that yet undeveloped country is a prize great enough to prompt the most strenuous exertions. In point of distance, however, what is known as the "Gould system," by its acquisition of the

International and Great Northern Railway of Texas, gains an important advantage.

That road has already reached a point 80 miles beyond San Antonio, Texas. From that point the distance to Laredo, on the Mexican border, is about 70 miles, thence to the City of Mexico is less than 600 miles on the map. But the air line distance from the present terminus of the Atchison road to the City of Mexico is about 1,000 miles. If there be an advantage possessed by either road in avoiding rough country, that advantage must be greatly in favor of the Texas route; but a much more important point as to possible rapidity of construction, is that the builders of the Southern line can commence on the Rio Grande and build both ways, thence as well as southwestward from San Antonio, while the Northern road can be pushed from one point only. And again, as to cost of construction, the advantage will be very greatly in favor of the route which can deliver its iron and heavy materials on the Rio Grande by water, while the Atchison road will be compelled to transport everything nearly 1,500 miles by rail, from the banks of the Mississippi to the starting-point of its Mexican movements. These advantages ought to be decisive. The Texas road will be completed to the City of Mexico years sooner than any other, and at many millions of dollars less cost.

THE TEXAS AND PACIFIC RAILWAY AND THE COUNTRY THROUGH WHICH IT PASSES.

When it first became apparent that the necessities of the nation would soon require a railway to the Pacific Ocean, engineers studying the geographical features of the country and the commercial necessities of the road, designated the 32d parallel of latitude as its proper location. Major-General, then Captain Pope, an officer distinguished for his scientific attainments, was placed in charge of the survey. After a thorough study of all the factors which entered into the problem, he fixed upon the 32d parallel as the best for the proposed road, and it has ever since remained the favorite route. Although other routes have been built and operated for years, each recurring winter demonstrates anew that near this parallel a road can be constructed which shall be free from the annually recurring vexation of snow blockade.

And it is a well ascertained fact, that never will the American people possess a trans-continental road, open at all seasons of the year, and fully adapted to all the growing necessities of commerce, until the Texas and Pacific shall have been completed along the parallel indicated. A glance at the history of this enterprise will be interesting.

In 1852 the legislature granted a charter, amended in 1854 and 1858, to what was known as the Southern Pacific Railroad Company, with a grant of sixteen sections of land to the mile. This road was to begin at the State line, twenty miles east of Marshall, and extend westward to a connection with the Trans-continental, or, in case of a failure of the latter to construct its line, then to build inde-

pendently to El Paso. No part of this line was built before the war, and only twenty-two miles during that period by the Confederate government as a military expedient. On the 3d of March, 1871, the congress of the United States chartered the Texas Pacific Railway Company, the name of which was changed to Texas and Pacific, granting the right of way through the territories.

The initial points of this road on the Atlantic and Pacific slopes were respectively, Marshall, Texas, and San Diego, California, with El Paso and Fort Yuma as intermediate points. Texas approved this charter, so far as her own territory extended. In 1872 Colonel Thomas A. Scott and his associates purchased all the chartered rights and franchises of the three roads, viz.: the Southern Pacific, the Trans-continental, and the Texas Pacific, uniting all under one and the same corporation, viz.: the Texas and Pacific Railway Company. During the long time that these companies had existed, they had built only forty-four miles of road within the limits of Texas.

ITS EXTENSION.

Its initial point is Texarkana, a growing and prosperous city on the line between Arkansas and Texas, and the southwestern terminus of the St. Louis, Iron Mountain and Southern Railway.

From this point two lines of the Texas and Pacific Railway penetrate the State of Texas. The Trans-continental division completed at present westwardly across the northern tier of counties, through Clarksville, Paris, and other growing towns, to the city of Sherman, a distance of 154½ miles. This division is now completed from Sherman *via* Whitesboro, Pilot Point and Denton to a junction with the Southern Division at both Fort Worth and Dallas. The main line extends from Texarkana in a southerly direction through the city of Jefferson to Marshall, seventy-four miles.

From Marshall the Southern Division is completed eastwardly to Shreveport, in Louisiana, an old city of some 15,000 inhabitants, a place of extensive trade and one of the largest cotton markets in the South. From here the road is now being extended (under the charter of the New Orleans Pacific Railway) to the city of New Orleans, distant about 325 miles. Negotiations have just been effected which doubtless will result in the completion of this road within the next eighteen months to the aforesaid city, the metropolis of the South.

From Marshall the main line of the Texas and Pacific extends westwardly through the important towns of Longview, Mineola, Wills Point, Terrell, the city of Dallas, Fort Worth, Weatherford, and on West.

The road was completed to Fort Worth late in the year 1876, its terminus remaining here until May 1880. Construction is progressing rapidly; grading on the fifth one hundred miles is far advanced; track has at this date been laid a distance of about 400 miles west of Fort Worth, and is progressing at an average rate of more than a mile per

day; and it is expected the track will be finished to El Paso, on the western border of Texas, by 1st January, 1882.

The rapid extension of the Texas and Pacific is opening up new and vast fields to enterprise, and is infusing new life into the country through which it is being constructed.

THE GULF, COLORADO AND SANTA FE RAILWAY.

In 1873 the enterprising citizens of Galveston felt that it comported with neither the dignity nor the interest of the chief seaport of the Gulf, to depend for all connection with the railway system of the country on a single line of road. The Gulf, Colorado and Santa Fe was projected, with Galveston on the Gulf for its initial point, and Santa Fe, New Mexico, for its destination. Realizing the truth of the maxim that "the gods help those who first help themselves," the projectors of this enterprise built, equipped, and operated the first sixty four miles before going into the money markets of the world for that aid which most roads ask before the first spadeful of dirt is thrown. The Gulf, Colorado and Santa Fe crosses from Galveston city, on Galveston Island, to the mainland, on a bridge two miles in length; passing through the rich bottom lands, it crosses and makes connection with the International and Great Northern at Arcola. Maintaining the general direction to the west of north, it intersects the Galveston, Harrisburg and San Antonio at Richmond, in Fort Bend county. Next it makes connection with the Austin branch of the Houston and Texas Central at Brenham, in Washington county. Then it again crosses the International and Great Northern at Milano junction, in Milam county, and thence to Belton, in Bell county, where a connection will be established with the Mexican extension of the Missouri Pacific.

At Belton, or rather at a station called Temple, six miles south of that point, the road forks, one branch going northeast through McClellan, Bosque, and Johnson, to Fort Worth, in Tarrant county, where it will intersect the Texas and Pacific, and establish a through connection to the north by that route and the Missouri Pacific road.

The other fork will go to the northwest through Coryell, Lampasas, and other counties in the direction of Santa Fe. This will be the main or trunk line of the road. It may be added in this connection that the Gulf, Colorado and Santa Fe has constructed and is operating 300 miles of road, and has all the financial arrangements made for the building of 180 additional miles, which will include the whole of the Belton and Fort Worth branch and—miles on the main line.

INTERNATIONAL & GREAT NORTHERN RAILWAY.

The general course of this railway and branches is through the eastern and middle portions of the State. On this line are many of the leading towns of the State. The road was commenced at Houston early in 1871, and was known as the Houston & Great Northern. The line from Longview to Austin was called the International. Up to December, 1873, the

roads were owned by separate and distinct corporations. On the date named, a consolidation was effected under the name of the International & Great Northern Railway. The following will show the present and prospective length of the road:

Miles in operation: Longview, in Gregg county, to Palestine, Anderson county, 83; Palestine to San Antonio, 261; Palestine to Houston, 152; Houston to Columbia, 51; Troupe to Mineola, 45; Phelps to Huntsville, 8; Georgetown Railroad, 10; Henderson & Overton, 15.

Total, 625 miles.

Miles in course of construction, San Antonio to Laredo on the Rio Grande, about 160 miles, of which some eighty miles have been finished recently, leaving at the present time (August, 1881) a gap of only seventy miles between the terminus and Laredo, most of which is graded.

The connections of the completed road are: The Missouri Pacific at Mineola, giving a through line to St. Louis and the East; Texas & Pacific Railway, at Longview and Mineola; Henderson & Overton Railway, at Overton; Houston, East and West Texas Narrow Gauge Railway, Texas & New Orleans Railway, Galveston, Houston & Henderson Railway, Galveston, Harrisburg & San Antonio Railway, Texas Western Narrow Gauge Railway, Houston & Texas Central Railway, Texas Transportation Railway, at Houston; Houston & Texas Central Railway, at Hearne and Austin, Gulf, Colorado & Santa Fe Railway, at Arcola and near Milano, and with the Galveston, Harrisburg & San Antonio Railway again at San Antonio.

At Laredo, on the Rio Grande, it is designed to connect with a projection of the line running thence to the City of Mexico.

The extension to San Antonio was completed about the 15th of January, 1881.

The present termini of the road are Mineola and Longview on the north, and Houston and San Antonio on the south and southwest. The various counties through which this road runs afford all the varieties of Texas soil and climate.

Through the timber belt, the advantages of loamy creek bottoms for cereals and cotton, and sandy hill soils adapted to fruit, are to be added to the facilities for building, fencing and fuel. Water in this region is generally more easily procured than on the prairies. The latter supply the most productive soils, however, as the counties along the line of this road from Hearne west give evidence. From this place to Austin is to be seen a farming country scarcely excelled in any part of the State for fertility, topography and beauty of agricultural, as well as plain, natural scenery.

The region traversed by the eighty-mile extension, from Austin to San Antonio, is regarded by many as the garden spot of the State. In soil and scenery, it is of rare excellence. The never-failing Blanco, Comal and San Marcos Rivers flow through this part of the State, and furnish reliable water-power, now being utilized for flour milling and other manufacturing purposes. Through well-di-

rected efforts, this road has added largely to the population of the State, and now reaps the benefit of its policy in a fine class of farmers along its line, and several large towns, doing a heavy business, and among these may be named Palestine, the headquarters of the road.

As to the extension: Leaving Austin, the line extends in a southerly direction, sixteen miles in Travis county, passing over an undulating surface, with a black, calcareous soil, well timbered, almost all the way, immediately upon the line of the road, with live-oak, pin-oak, cedar and pecan, while broad rolling prairies spread out on either side of the timber; the valleys being rich and productive, and the broken and hilly portion affording excellent grass for pasture. Limestone rock, of excellent quality for building purposes, exists in large quantities, and not only many durable fences, but slightly and comfortable dwellings, are also constructed of this valuable material. Persons seeking a healthy country, where stock-raising and farming may be carried on successfully, either separately or in conjunction, and at the same time having the facilities and advantages of a railroad and organized society, should not neglect to see this section.

MISSOURI PACIFIC RAILWAY—THE COUNTRY WHICH IT TRAVERSES.

By the recent consolidation of the Missouri, Kansas & Texas, and the Central Branch of the Union Pacific with the Missouri Pacific, this latter company is one of the largest in the United States. It traverses Missouri from the east to the west, and from the northeast to the southwest, runs through Northern Kansas, through East Centre Kansas, and north and south through the Neosho Valley, through Southwestern Kansas, and south through the beautiful Indian Territory to Denison, Texas, where it diverges, the Southwestern Branch running to Whitesboro', Denton, Fort Worth; thence south through Johnson, Hill and McLennan counties to a second connection with the International and Great Northern Railroad, at Taylor, in Williamson county. It is already completed from Denison, in Grayson county, to a connection with the Texas & Pacific at Fort Worth, and is under contract the whole way from Fort Worth to Temple, near Belton, in Bell county; and grading and bridging rapidly progressing.

The Southeastern Branch, from Denison

to Greenville, in Hunt county, has recently been completed to its connection with the Texas & Pacific and the International & Great Northern Railways at Mineola, in Wood county. The Missouri Pacific having leased the International & Great Northern, they may now practically be considered one and the same road, and two daily express trains are now run from St. Louis to San Antonio, Texas, by this line.

By these connections of the Missouri Pacific with the International and Great Northern, the great sugar belt of Texas has an outlet to the markets of the East. The lumber region of Eastern Texas, the sugar regions lying southwest from Houston, and the teeming fields of Northern Texas are brought into juxtaposition. The constant exchange of products arising from the tillage of the country tributary to this line of railroad, a country capable of sustaining an immense population, and admitting an almost endless variety of productions, will yield a tonnage wonderful in its immensity. Along this line every variety of staple crop, from the cereals of the temperate to the sugar and fruits of the tropical zone, will find a genial home in the soil and a climate exactly suited to its maturity.

But an equally important result is that there will be a direct line and immediate connection between the Red River and the Rio Grande.

When this road is completed to the city of Mexico, which will be in the near future, this will be the principal avenue for the rich products of Mexico, and will promote a commerce with the neighbor republic of great value. It will be of immense importance to the stock-raisers of the great pastoral regions of Southwestern Texas, furnishing them with a direct through route to the markets of the East. It will bring to notice and development a vast section of the State which has heretofore been devoted to stock-raising, on account of its isolation and want of transportation.

The country in Texas, traversed by these two branches of the Missouri Pacific, in connection with the International & Great Northern Railroad, is one of enormous extent, and presents every peculiarity and advantage that Texas can offer, and every diversity of soil and climate. The immigrant coming into the State over this line, and traversing it throughout its extent, who cannot find an "abiding place," would be, indeed, "hard to please."

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STATISTICS OF LOUISIANA

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STATISTICS OF TEXAS.

Area, 274,356 sq. miles
Population 1870, 818,570
Population 1880, 1,502,074
Mean Temperature at Austin, 67°
Distance of Galveston from New York, 1,780 miles
Galveston time, 1 h. 23 min. slower than New York time.
Taxable Value, \$38,970,730
Rate of Taxation, four (4) mills.
Area of Corn, 20,000 sq. miles.

CROPS.

No. of acres tilled,		1,024,596
Corn,	29,198,000	\$91,073,940 value
Wheat,	3,454,200	3,972,380
Oats,	5,002,500	2,456,750
Rye,	32,400	32,400
Potatoes,	310,200	400,158
Hay,	1,524,840 tons	28,043,720
Sugar and Molasses,		433,990
Wool,	14,508,920 lbs	2,013,784
Cotton,	951,065 bales	38,043,720
Cattle,	4,464,000 head	30,640,320
Horses,	963,900	21,331,107
Sheep,	5,148,400	4,730,476
Hogs,	1,817,800	4,695,390

Miles of Railroad completed Jan. 1, 1881, 3,301
Miles of Railroad under contract, 2,000
Total tonnage carried by Railroads in 1879, 131,965,010
No. of Vessels owned, 92
Tonnage, 14,401

EDUCATION.

No. of Public Schools,	4,523
Teachers—White, 3,258—Colored, 991. Total,	4,249
Colleges,	10
Normal Schools,	2
Agricultural and Mechanical College,	1
School Population,	210,000
No. of Pupils enrolled,	150,000
Amount expended in Public Education,	\$865,910
No. of Periodicals,	254

SCHOOL AND CHARITY ENDOWMENTS.

Permanent School Fund,	\$3,500,000
Public School Lands,	38,980,514 acres
County School Endowment,	3,985,200
University Endowment,	1,219,306
Agricultural and Mechanical College (end.),	500,000
Orphan Asylum,	103,229
Deaf and Dumb Institute,	101,644
Blind Institute,	102,642
Lunatic Asylum,	100,100

PUBLIC LANDS FOR SALE.

Public School Lands in organized Counties, minimum price, \$1.00 per acre.
University Lands, minimum price, \$1.50 per acre.
Asylum Lands, 1.50
Other public lands are subject to homestead location of 160 acres, or are for sale at 50 cents per acre.
County School Lands are controlled and sold by the respective counties.

STATISTICS OF ARKANSAS.

Area, 52,198 sq. miles
Population 1870, 484,471
Population 1880, 802,594
Mean Temperature at Little Rock, 69°
Distance of Little Rock from New York, 1,411 miles
Little Rock time is 1 h. 13 min. slower than New York time.
Taxable Valuation, \$86,832,541
Rate of Taxation, six and one half (6½) mills.
Area of Coal Fields, 12,000 sq. miles

CROPS.

No. of acres tilled,	2,382,448
Corn,	22,432,800 bush.
Wheat,	1,384,000
Oats,	1,063,420
Rye,	42,000
Potatoes,	600,000
Hay,	21,800 tons
Cotton,	663,416 bales
Cattle,	371,300 head
Horses,	191,100
Sheep,	293,500
Hogs,	1,146,000

Miles of Railroad completed Jan. 1, 1880, 808

EDUCATION.

No. of Public School Houses,	785
Value of School Houses,	\$108,007.77
No. of Teachers,	1,438
School Population,	236,001
No. enrolled,	53,040
Amount expended in Public Education,	\$205,440
No. of Periodicals,	19

STATISTICS OF LOUISIANA.

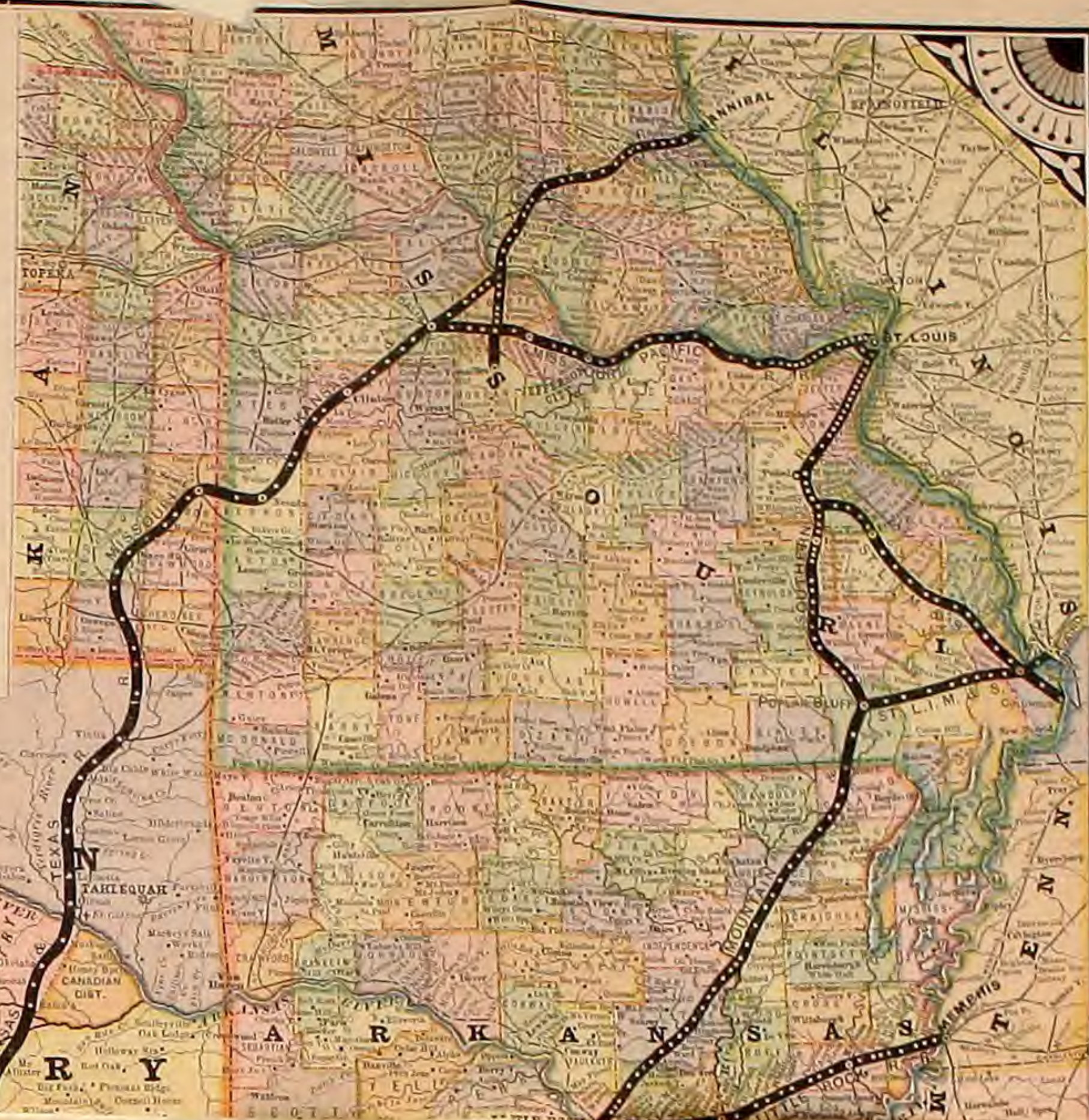
Area, 41,346 sq. miles
Population 1870, 720,915
Population 1880, 939,163
Mean Temperature at New Orleans, 69°
Distance of New Orleans from New York, 1,378 miles
New Orleans time is 1 h. 4 min. slower than New York time.
Taxable Valuation, \$224,579,569
Rate of Taxation, six (6) mills.

CROPS.

No. of acres tilled,	2,369,559
Corn,	12,552,500 bush.
Oats,	14,000
Sugar,	211,740,000 pounds
Cotton,	593,431 bales
Cattle,	119,900 head
Horses,	82,500
Sheep,	135,100
Hogs,	378,500

Miles of Railroad completed Jan. 1, 1881, 545
No. of Vessels owned, 670
Tonnage, 91,379

No. of Colleges, 7
School Population, 389,949
No. Enrolled, 78,528
Expended in Public Education, \$220,000



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MAP of the
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